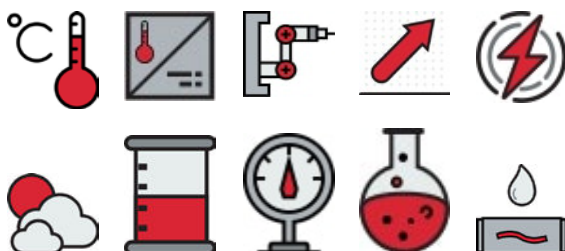# PRODUCT CATALOGUE

2023/2

Intech
Instruments ®

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At Intech we are dedicated to and very passionate about instrumentation.

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RTD PROBES WITH LEADS

RL Series

RTD Probes with Leads (Tip rated to 260°C)

Pt100 Probes with integral cable

RL Probe with silicone cable

- Pt100, Class A Temperature Sensor (others available)
- Temperature ranges from -70~260°C
- Probe material 316SS
- Probe diameters from 3.3mm to 7.9mm
- Various Lead Insulation Materials (PVC, PTFE, Silicone Rubber)
- Various RTD transmitters are also available to suit your particular application

Code	Specifications
RL-S6.4-50-C-3000-N	RL Probe 6.4mmØ x 50mm, 3m Silicone Rubber cable (-30~180°C)
RL-S6.4-100-C-3000-N	RL Probe 6.4mmØ x 100mm, 3m Silicone Rubber cable (-30~180°C)
RL-S6.4-150-C-3000-N	RL Probe 6.4mmØ x 150mm, 3m Silicone Rubber cable (-30~180°C)
RL-S6.4-150-C-5000-N	RL Probe 6.4mmØ x 150mm, 5m Silicone Rubber cable (-30~180°C)
RL-S6.4-150-C-10000-N	RL Probe 6.4mmØ x 150mm, 10m Silicone Rubber cable (-30~180°C)
RL-S6.4-150-C-20000-N	RL Probe 6.4mmØ x 150mm, 20m Silicone Rubber cable (-30~180°C)
RL-S6.4-100-D-5000-N	RL Probe 6.4mmØ x 100mm, 5m PTFE cable (-100~260°C)
RL-S6.4-150-D-10000-N	RL Probe 6.4mmØ x 150mm, 10m PTFE cable (-70~260°C)
RL-S3-50-D-2000-N	Powder Packed RL Probe 3mmØ x 50mm, 2m PTFE cable (-70~260°C)
RL-S3-100-D-2000-N	Powder Packed RL Probe 3mmØ x 100mm, 2m PTFE cable (-70~260°C)
RL-S4.7-100-D-2000-N	Powder Packed RL Probe 4.7mmØ x 100mm, 2m PTFE cable (-70~260°C)
RL-S6.4-70-A-2000-W	RL Probe with 30x30mm Wall Mount Bracket, 6.4mmØ x 700mm, 2m 3 Core PVC Cable (-10~80°C)
RL-X6.4-100-C-5000-N	RL Probe with Pt1000 sensor, 6.4mmØ x 100mm, 5m Silicone Rubber cable (-30~180°C)
RL-MISC	RL Miscellaneous Probe. Please see other options available in the Ordering Information table

RL with Wall Mount Bracket

RL with PTFE Cable

RL with PTFE cable and collar

Ordering Information - RL Series

Item	Code						Specification
Model	RL-						RTD Probe with Lead
Element		S					Single (Pt100)
		D					Duplex (2 x Pt100)
		X					Other (E.g. Pt1000)
Outer Diameter			3-				Millimetres (316SS)
			4.5-				Millimetres (316SS)
			6-				Millimetres (316SS)
			6.4-				Millimetres (316SS) 1/4"
			7.9-				Millimetres (316SS) 5/16"
			x-				Other (4mm, 5mm, 3/16", 3/8", 1/2" 20G)
Sheath Length				xxx-			Millimetres (Specify)
Lead					A-		3 Core PVC 16/0.2 (-10~80°C)
					B-		4 Core PVC Screened 7/0.2 (-10~80°C)
					C-		3 Core Silicone Rubber 14/0.15 (-30~180°C)
					D-		3 Core PTFE 7/0.2 (-190~260°C)
					E-		3 Core PTFE SSOB (-190~260°C)
					F-		4 Core FG/FG SSOB (0~400°C)
Lead Length						xxx-	Millimetres (Specify)
Options							N	None
							FR	Fast Response Tip
							W	Wall Mount Bracket
							P	Plug (M12, 3pin RTD or Switchcraft IP rated) (specify)

Model No. Example: **RL-S6.4-100-C-3000-N** (RTD probe with lead, single element, 6.4mm diameter, 100mm sheath length and 3m of 3 Core Silicone Rubber cable)

Notes: - The above covers the more common RTD probes. We can supply probes to your particular application.
- In house Temperature Calibration Certificate is also available - please enquire.

MRL Series

Mineral Insulated RTD Probes with Leads (Tip Rated to 500°C)

Pt100 Probes with integral cable and maximum temperature rating (at probe tip) 500°C

- Pt100, Class A Temperature Sensor (Other available)
- Maximum Temperature rating (at probe tip) 500°C
- Probe material 316SS
- Probe diameters of 3mm and 6mm
- Potseal rated to 300°C
- Various Lead Insulation Materials (PVC, PTFE, Silicone Rubber)
- Various RTD transmitters are also available to suit your particular application

Code	Specifications
MRL-MISC	Please contact us for more information.

RTD PROBES WITH PROTECTION HEAD

RH/RHP Series

RTD Probes with Protection Head (Tip rated to 260°C)

Powder Packed Probes with Terminal Heads and Process Connection

RH Probe with Large Head

- RTD Pt100 DIN standard element, others available on request
- Probe diameters from 3mm
- Temperature range from -70~260°C
- Sheath materials 304SS and 316SS
- Fast response tip option available
- Standard Aluminium head, other terminal heads available:
    - Polypropylene (White) Large only
    - Machined Stainless Steel, Large Only
- Optional head-mount transmitter, different models:
    - XU2HN, Non Isolated
    - XU2HI, Isolated
    - LPN-R-H, Non Isolated
    - dTRANS T01-B-Ex, HART® and Ex Rating

Code	Specifications
RH-S6.4-xxx-SA-N-N-N	RH Probe with Small Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300, 350mm
RH-S6.4-xxx-LA-N-N-N	RH Probe with Large Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300, 350mm
RH-S6.4-500-LA-N-N-N	RH Probe with Large Aluminium head, 6.4mmØ x 500mm, 316SS.
RH-S6.4-600-LA-N-N-N	RH Probe with Large Aluminium head, 6.4mmØ x 600mm, 316SS.
RHP-S6.4-xxx-SA-N-N-N	RHP Probe, 1/2"BSP Small Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300mm
RHP-S6.4-xxx-LA-N-N-N	RHP Probe, 1/2"BSP Large Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300mm
RH-D6.4-xxx-LA-N-N-N	RH Duplex Probe with Large Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300mm
RHP-D6.4-xxx-LA-N-N-N	RHP Duplex Probe with 1/2"BSP Large Aluminium head, 6.4mmØ 316SS. Lengths: 100, 150, 200, 250, 300mm
RH-MISC	RH/RHP Miscellaneous Probe. Please see other options available in the Ordering Information table.

xxx = Specify length required when ordering.

RHP Probe with Small Head

RH Probe with Small Head

RHP Probe with Large Head

Accessories

Compression Fittings

Stainless steel. Different sizes available. See page 26.

Pockets

Relative to probe length, using a compression gland or the probe's process thread for support. See page 27.

XU2HN

Single RTD Temperature Input Transmitter. For mounting in a probe head. Non Isolating. See page 103.

Ordering Information RH/RHP Series

Item	Code						Specification
Model	RH-						RTD Probe with Protection Head
	RHP-						RTD Probe with Protection Head and 1/2" BSP Process Fitting
Element		S					Single (Pt100)
		D					Duplex (2 x Pt100)
		X					Other (E.g. Pt1000)
Outer Diameter		6.4-					Millimetres (Standard, 316SS)
		X-					Other
Sheath Length			xxx-				Millimetres (Specify)
Protection Head			SA-				Small Aluminium
			LA-				Large Aluminium
			LP-				Large Polypropylene (White)
			SS-				Large Machined Stainless Steel
Transmitter*				N-			None
				H-			XU2HN Non Isolated Head Transmitter
				I-			XU2HI Isolated Head Transmitter
				L-			LPN-R-H Non Isolated Head Transmitter
				E-			dTRANS T01-B-Ex In-Head Transmitter with HART® and Ex Rating
Transmitter range					N-		None
					55-		-50~50°C
					05-		0~50°C
					10-		0~100°C
					15-		0~150°C
					20-		0~200°C
					25-		0~250°C
					xx-		Special range (please specify)
Options						N	None
						FR	Fast Response Tip
						G	Spring Loaded

*Fits Large Head only.

Model No. Example: **RHP-S6.4-100-LA-H-10-N** - RTD Probe with head and 1/2" BSP Process fitting, single element, 6.4mm diameter, 100mm sheath length, large aluminium head with XU2HN transmitter ranged to 0~100°C.

Notes: - The above covers the more common RTD probes. We can supply probes to your particular application.
- In house Temperature Calibration Certificate and Probe Parts are also available - please enquire.

MRH/MRHP Series

Mineral Insulated RTD Probes with Protection Head (Tip rated to 500°C)

Mineral Insulated Probes with Terminal Heads and Process Connection

- RTD Pt100 DIN standard element, others available on request
- Temperature range from -190~500°C
- All sheath materials 316SS
- Standard Aluminium head, other terminal heads available:
    - Polypropylene (White) Large only
    - Machined Stainless Steel, Large only
- Optional head-mount transmitter, different models.
    - XU2HN, Non Isolated
    - XU2HI, Isolated
    - LPN-R-H, Non Isolated
    - dTRANS T01-B-Ex, HART® and Ex Rating

MRH Probe with Large Head

Code	Specifications
MRH-S6.0-xxx-SA-N-N-N	MRH Probe with Small Aluminum head, 6.0mmØ, 316SS. Lengths available: 100, 150, 200, 250, 300mm
MRH-S6.0-xxx-LA-N-N-N	MRH Probe with Large Aluminum head, 6.0mmØ, 316SS. Lengths available: 100, 150, 200, 250, 300mm.
MRHP-S6.0-xxx-LA-N-N-N	MRHP Probe with 1/2"BSP Large Aluminum head, 6.0mmØ, 316SS. Lengths available: 100, 150, 200, 250, 300mm.
MRH-MISC	MRH/MRHP Miscellaneous Probe.

xxx = Specify length required when ordering.

RTD ELEMENTS

RTD Elements

RTD Pt100/Pt1000 Elements complete with tails

Code	Specifications
Pt100-FF	Flat Film Pt100 5 x 2mm Class A with 350mm tails - 2 wire
Pt100-FF-3-350	Flat Film Pt100 5 x 2mm Class A with 350mm tails - 3 wire
Pt100-FF-3-600	Flat Film Pt100 5 x 2mm Class A with 600mm tails - 3 wire
Pt1000-FF	Flat Film Pt1000 10 x 2mm Class A with 350mm tails - 2 wire
Pt100-FF-DX	Flat Film Duplex Pt100 5 x 2mm Class A with 350mm tails - 4 wire
Pt100-min	Ceramic Miniature Pt100 1.6ø x 15mm Class A with 350mm PTFE tails - 2 wire
Pt100-min-3	Ceramic Miniature Pt100 1.6ø x 15mm Class A with 350mm PTFE tails - 3 wire
Pt100-std	Ceramic Standard Pt100 3.0ø x 15mm Class A with 350mm PTFE tails - 2 wire
Pt100-std-3	Ceramic Standard Pt100 3.0ø x 15mm Class A with 350mm PTFE tails - 3 wire
Pt100-DX	Ceramic Duplex Pt100 3.0ø x 15mm Class A with 350mm PTFE tails - 4 wire

Note: RTD Elements only are available on request

WALL MOUNT RTD PROBES

WMR Series

Wall Mount Pt100 Probes

WMR with Alloy Head

WMR with Conduit Box

- RTD Pt100 DIN Standard element
- Temperature ranges from -20~80°C (PVC) and -40~110°C (Alloy)
- Air insulated with heat transfer paste
- Sheath material 316SS
- Optional head mount transmitter XU2HN
- Optional Cable Gland for conduit box
- Sealed stem available (Powder packed)

Code	Specifications
WMR-S6.4-100-CB-N-N-N	Conduit Box (PVC) wall mount probe 6.4mmØ x 100mm, 316SS, IP44. Temp: Min/Max of probe: -20°~80°C.
WMR-S6.4-100-AH-N-N-N	Cast Alloy Head wall mount probe 6.4mmØ x 100mm, 316SS, IP67. Temp: Min/Max of probe: -40°~110°C.

Ordering Information WMR Series

Item	Code							Specification
Model	WMR							Wall Mounted RTD Assembly
Element		S						Single (Pt100)
		D						Duplex (2 x Pt100)
		X						Others
Outer Diameter			6.4-					Millimetres (316SS)
			X-					Other (Specify)
Sheath Length				100-				Millimetres (Standard)
				xxx-				Other (Specify)
Connection					CB-			Conduit Box (PVC) (-20~80°C)
					AH-			Cast Alloy Head (-40~110°C)
Transmitter						N-		None
						H-		XU2HN Non Isolated Head Transmitter
						I-		XU2HI Isolated Head Transmitter
						L-		LPN-R-H Non Isolated Head Transmitter
						E-		dTRANS T01-B-Ex Transmitter HART® and Ex Rating
Transmitter range							N-	None
							10-	0~100°C
							55-	-50~50°C
							X	Other ranges
Options								N	None
								C	Cable Gland for Conduit box
								S	Powder packed (rated -70~250°C at tip)

Model No. Example: **WMR-S6.4-100-CB-N-N-N** (Wall Mount Probe with Single element, 6.4mm diameter, 100mm sheath length and PVC conduit box connection).

Note: The above covers the more common RTD probes. We can supply probes to your particular application.

FOOD PROBES

FP Series

Fruit Probes

- Fruit Probe with Nylatron handle
- RTD Pt100 DIN Standard element
- Probe material 316 Stainless Steel
- Standard probe diameter 3.3mm (Others available on request)
- Temperature min/max at probe tip: -30~150°C
- Cable: 3 core PVC, lengths available in 10m, 15m and 20m (Other cable and lengths available on request)

Code	Specifications
FP-3.3-50A-10000	Fruit Probe 3.3mmØ x 50mm, 10m of 3 Core PVC Cable
FP-3.3-50A-15000	Fruit Probe 3.3mmØ x 50mm, 15m of 3 Core PVC Cable
FP-3.3-50A-20000	Fruit Probe 3.3mmØ x 50mm, 20m of 3 Core PVC Cable

Ordering Information FP Series

Item	Code					Specification
Model	FP					Fruit Probe
Outer Diameter	3.3-					Millimetres (316SS)
	X-					Other
Sheath Length		50				Millimetres
		xxx-				Other (Specify)
Lead			A-			3 Core PVC 16/0.2 (-30~150°C)
			X-			Others
Lead Length				10000		Millimetres
				15000		Millimetres
				20000		Millimetres
				xxxx-		Millimetres (Specify)
Options					N	None
					W	Stainless Anchor Wire
					P	M12 plug or 3 pin RTD plug (Specify)

Model No. Example: **FP-3.3-50A-20000-N** (Fruit Probe, 3.3mm diameter, 50mm sheath length and 20m of 3 Core PVC cable).

Note: The above covers the more common RTD probes. We can supply probes to your particular application.

DEEP BONE PROBES

DB Series

Deep Bone Probes

Hex nut, T-bar or Ring handle available.

DB with Hex Nut

DB with T-Bar handle

DB with Ring handle

- RTD Pt100 DIN Standard element
- Temperature range at probe tip: -30~180°C
- Probe material 316 Stainless Steel
- Standard probe diameter 6.4mm (others available on request)
- Cable: 7m, 3 Core Silicone Rubber (other cable and lengths available on request)

Code	Specifications
DB-6.4-150C-7000	Deep Bone Probe with Hex Nut, 6.4mmØ x 150mm 316 SS, Cable: 7m, 3 Core Silicone Rubber.
DBT-6.4-150C-7000	Deep Bone Probe with T-Bar handle, 6.4mmØ x 150mm 316 SS, Cable: 7m, 3 Core Silicone Rubber.
DBR-6.4-150C-7000	Deep Bone Probe with Ring handle, 6.4mmØ x 150mm 316 SS, Cable: 7m, 3 Core Silicone Rubber.

Ordering Information DB Series

Item	Code					Specification
Model	DB-					Deep Bone Probe with Hex Nut
	DBT-					Deep Bone Probe with T-Bar handle
	DBR-					Deep Bone Probe with Ring handle (140mm)
Outer Diameter		6.4-				Millimetres
		X-				Other (Specify)
Sheath Length			150			Millimetres
			xxx-			Other (Specify)
Lead				C-		3 Core Silicone Rubber 14/0.15 (-30~180°C)
				X-		Others (Specify)
Lead Length					7000	Millimetres (Standard)
					xxxx	Millimetres (Specify)

Model No. Example: **DBT-6.4-150-C-7000** (Deep Bone Probe with T-Bar handle, 6.4mm diameter, 150mm sheath length and 7m of 3 Core Silicone Rubber cable).

Note: The above covers the more common RTD probes. We can supply probes to your particular application.

SANITARY PROBES

SR Series

Sanitary RTD Assembly

SR with Triclover
and Machined SS head

SR with RJT Assembly
and Machined SS head

SR with Running Nut
and Machined SS head

Features:

- RTD Pt100 DIN Standard element
- 3-Wire RTD configuration
- Temperature range from -70~260°C
- All sheath material 316SS
- Environmental Rating IP67
- Assembly:
    - Triclover   1.5", 2", 2.5", 3"
    - RJT   1.5", 2", 2.5", 3"
    - Running nut   1/2", 3/4" BSPP
- Probe diameters from 3mm
- Mineral insulated optional

Options:

- Optional fast response tip
- Duplex sensor
- Standard large machined SS head, other terminal heads available:
    - Large Polypropylene - White
    - Large Aluminium (Optional)
- Optional head-mount transmitters:
    - XU2HN, Non Isolated
    - XU2HI, Isolated
    - LPN-R-H, Non Isolated
    - dTRANS T01-B-Ex, HART®/ Ex Rated

Code	Specifications
SR-S6.4-75-TC2-SS-N-N-N	SR Probe, 2" Triclover, 6.4mmØ x 75mm, Large Machined SS head
SR-S6.4-75-TC2-LP-N-N-N	SR Probe, 2" Triclover, 6.4mmØ x 75mm, Large Polypropylene head
SR-S6.4-75-RN0.75-SS-N-N-N	SR Probe, Running Nut, 6.4mmØ x 75mm, Large Machined SS head
SR-S6.4-75-RN0.75-LP-N-N-N	SR Probe, Running Nut, 6.4mmØ x 75mm, Large Polypropylene head
SR-S6.4-75-RJT2-SS-N-N-N	SR Probe, 2" RJT fitting, 6.4mmØ x 75mm, Large Machined SS head
SR-S6.4-75-RJT2-LP-N-N-N	SR Probe, 2" RJT fitting, 6.4mmØ x 75mm, Large Polypropylene head
SR-MISC	SR Miscellaneous Probe. See Ordering Information Table.
Options	
M12 Connection	M12x1 IP67 Male plug fitted
00409334	M12x1 Plug 2m PVC Angled Cable – Unvented
SRNSS	Short socket for Running Nut Sanitary Probe
SRNLS	Long socket for Running Nut Sanitary Probe
Certificate	Fast Response Certificate (Fast response tip probes only)

Ordering Information SR Series

Item	Code		Specification
Model	SR-		Sanitary Probe with Standard Tip
	SRF-		Sanitary Probe with Fast Response Tip
Element	S		Single (Pt100)
	D		Duplex (2 x Pt100)
	X		Others
Outer Diameter*	6.4-		Millimetres (Standard)(316SS)
	X-		Other (Specify)
Sheath Length	75-		Millimetres (Standard)
	xxx-		Other (Specify)
Sanitary Fitting	TC-		Triclover® (Triclamp)
	RJT-		RJT (Slotted Nut)^
	RN-		Running Nut
Sanitary Fitting Size (See previous table for sizes in mm)	1-		Inch
	1.5-		Inches
	2-		Inches
	2.5-		Inches
	0.75-		Inches
Protection Head	SS-		Large Machined Stainless Steel
	LP-		Large Polypropylene (White)
	LA-		Large Aluminium (Option)
Transmitter	N		None
	H-		XU2HN Non Isolated Head Transmitter
	I-		XU2HI Isolated Head Transmitter
	L-		LPN-R-H Non Isolated Head Transmitter
	E-		dTRANS T01-B-Ex In-Head Transmitter HART® / Ex
Transmitter Range	N-		None
	55-		-50~50°C
	10-		0~100°C
	20-		0~200°C
	xx-		Special range (please specify)
Accessories/Options (add as many as required)		N	None
		M	M12 Plug fitted, IP67*
		MC	M12 Plug fitted, IP67 with Angled PVC Cable*
		S	Short Socket for RN Running Nut option**
		L	Long Socket for RN Running Nut option**
		T	Teflon Crush Washer**
		CT	Temperature Report ***

^ Hex Nut also available on request.
* Available with SS head only.
** For RN Running Nut fitting only.
*** Only available for SRF Fast Response Tip Probes.
Model No. Example: **SR-S6.4-75-TC1.5-SS-H-10-N** (Sanitary RTD probe with Single element, 6.4mm diameter, 75mm sheath length, Triclamp 1.5" fitting, Stainless steel head and XU2HN Transmitter set to 0~100°C).

Note: The above covers the more common RTD probes. We can supply probes to your particular application.

SURFACE RTD PROBE

Pt100 Patch

Surface Pt100 Patch

- RTD Pt100 Class B in moulded silicone rubber patch
- 40mm x 13mm x 5mm
- 2 metres PFA insulated screened cable 7/0.1mm with 75mm tails
- Temperature range from -50~150°C
- Oil and chemical resistant

Code	Specifications
Pt100-Patch	Surface Pt100 Patch

SCREW-IN RTD SENSORS

VIBROtemp

Screw-in Pt100 Temperature Probe with plug connector

Features

- For temperatures from -50~270°C (for the short term up to 300°C)
- Vibration-resistant construction
- Different plug connectors; locked against contact
- Protection type up to IP67 / IP69 according to DIN EN 60529 (IP69K according to DIN 40050)

Applications
- Commercial vehicles, construction and agricultural machinery, engines, compressors, and railway technology.

Code	Specifications
902040/15	VIBROtemp - Screw-in RTD temperature probe with Bayonet connector, 29mm x 7.5mm. 1/2"BSP with included adaptor. 902040/15-387-1003-1-7.5-29-121-20
Accessories	
902040/15-LEAD	Bayonet mating connector with 3m cable

THERMOCOUPLE WITH LEADS

MTL Series

Mineral Insulated Thermocouples with Leads

MTL Probe with fiberglass SSOB cable

- K, J, T and N calibration
- Temperature ranges from -270~1600°C
- Maximum temperature at probe tip: 1100°C
- Pot seal rated to 300°C
- Isolated and bonded hot junctions
- Various sheath materials for different environments (Inconel 600, 310SS, Cupro Nickel, Nicrobell)
- Sheath diameters from 1.0mm to 10.8mm
- Various Lead insulation materials (PVC, Fibreglass, Stainless Steel Overbraid, Stainless ArmourFlex)

Code	Specifications
MTL-I3.0K310-150EHF2000X	MTL Thermocouple 3.0mmØ x 150mm, Type K, 2m Fiberglass SSOB
MTL-I3.0K310-300EHF2000X	MTL Thermocouple 3.0mmØ x 300mm, Type K, 2m Fiberglass SSOB
MTL-I4.5K310-100EHF2000X	MTL Thermocouple 4.5mmØ x 100mm, Type K, 2m Fiberglass SSOB
MTL-I4.5K310-300EHF2000X	MTL Thermocouple 4.5mmØ x 300mm, Type K, 2m Fiberglass SSOB
MTL-I6.0K310-150-EHF2000X	MTL Thermocouple 6.0mmØ x 150mm, Type K, 2m Fiberglass SSOB
MTL-I6.0K310-300EHF2000X	MTL Thermocouple 6.0mmØ x 300mm, Type K, 2m Fiberglass SSOB
MTL-MISC	MTL Miscellaneous Probe. See Ordering Information Table below.

Ordering Information MTL Series

Item	Code		Specification
Model	MTL-		Mineral Insulated Thermocouple with Leads
Hot Junction	I		Isolated Junction (Standard)
	B		Bonded Junction
Outer Diameter	1.0		Millimetres
	1.5		Millimetres
	3.0		Millimetres
	4.5		Millimetres
	6.0		Millimetres
	10.8		Millimetres
Calibration	K		Thermocouple Type K (-270~1260°C)
	J		Thermocouple Type J (-210~750°C)
	T		Thermocouple Type T (-270~370°C)
	N		Thermocouple Type N (-270~1300°C)
	2K		Duplex Thermocouple Type K
	2J		Duplex Thermocouple Type J
	2T		Duplex Thermocouple Type T
	2N		Duplex Thermocouple Type N
	X		Other (Type R, S, etc) (Specify)
Sheath Material	310-		Stainless Steel (K, N) 1100°C
	600-		Inconel ® (K, N) 1200°C
	NCB-		Nicrobell ® (K, N) 1250°C
	610-		Ceramic (Max 1400°C)
	710-		Ceramic (Max 1600°C)
	X-		Other (Specify)
Sheath Length		xxx	Milimetres (Specify)

Potseal Epoxy	**EL**			Max Temp 120°C
	EH			Max Temp 300°C
		A		Solid Core Tails
		B		7/0.2 PVC Insulated Tails
		C		7/0.2 Fibreglass Insulated Tails
		D		7/0.2 PVC/PVC Lead
Tails/Lead		**E**		7/0.2 F/G-F/G Lead
		F		7/0.2 F/G-F/G-SSOB Lead*
		G		7/0.2 PTFE/PTFE Lead
		H		7/0.2 PTFE/PTFE SSOB Lead*
		X		Other (Specify)
Tails/ Lead Length			**xxx**	Milimetres (Specify)
			X	None
			MP	Mini Plug (180°C)
			MJ	Mini Jack (180°C)
Connector			**P**	Standard Plug (180°C)
			J	Standard Jack (180°C)
			XP	High Temperature Plug (260°C)**
			XJ	High Temperature Jack (260°C)**

* Stainless Steel Overbraid – SSOB
** Standard size Plugs and Jacks only.

Model No. Example: **MTL-I4.5K310-150EHF2000X** (Mineral Insulated Thermocouple with Lead, Isolated Junction, 4.5mm diameter, Type K, 150mm long, Stainless Steel Sheath Length, Max Temp 300°C and 2m of F/G F/G SSOB Lead).

Note: The above covers the more common Thermocouple probes. We can supply probes to your particular application.

THERMOCOUPLE WITH CONNECTORS

MTC Series

Mineral Insulated Thermocouples with connectors

MTC Probe with Standard Plug Connector

- K, J, T and N calibration
- Temperature ranges from -270~1600°C
- Isolated and bonded hot junctions
- Various sheath materials for different environments (Inconel 600, 310SS, Cupro Nickel, Nicrobell)
- Sheath diameters from 1.0mm to 6.0mm
- Various plug and jack connectors

Code	Specifications
MTC-I3.0K310-300-MP	MTC Probe 3.0mmØ x 300mm, Type K, Stainless Steel, Mini Plug
MTC-I4.5K310-300-P	MTC Probe 4.5mmØ x 300mm, Type K, Stainless Steel, Standard Plug
MTC-I6.0K310-300-P	MTC Probe 6mmØ x 300mm, Type K, Stainless Steel, Standard Plug
MTC-I3.0K600-400-XP	MTC Probe 3.0mmØ x 400mm, Type K, Inconel, High Temperature Plug
MTC-I3.0K600-1000-XP	MTC Probe 3.0mmØ x 1000mm, Type K, Inconel, High Temperature Plug
MTC-I3.0K600-2000-XP	MTC Probe 3.0mmØ x 2000mm, Type K, Inconel, High Temperature Plug
MTC-MISC	MTC Miscellaneous Probe. See Ordering Information Table below.

Ordering Information MTC Series

Item	Code					Specification
Model	MTC-					Mineral Insulated Thermocouple with Connector
Hot Junction	I					Isolated Junction (Standard)
	B					Bonded Junction
Outer Diameter		1.0				Millimetres
		1.5				Millimetres
		3.0				Millimetres
		4.5				Millimetres
		6.0				Millimetres
Calibration			K			Thermocouple Type K (-270~1260°C)
			J			Thermocouple Type J (-210~750°C)
			T			Thermocouple Type T (-270~370°C)
			N			Thermocouple Type N (-270~1300°C)
			2K			Duplex Thermocouple Type K
			2J			Duplex Thermocouple Type J
			2T			Duplex Thermocouple Type T
			2N			Duplex Thermocouple Type N
Sheath Material				310-		Stainless Steel (K, N) 1100°C
				600-		Inconel ® (K, N) 1200°C
				NCB-		Nicrobell ® (K, N) 1250°C
				610-		Ceramic (Max 1400°C) (Type R only)
				710-		Ceramic (Max 1600°C) (Type R only)
				X-		Other (Specify)
Sheath Length					xxx	Milimetres (Specify)
Connector					X	None
					MP	Mini Plug (180°C)*
					MJ	Mini Jack (180°C)*
					P	Standard Plug (180°C)
					J	Standard Jack (180°C)
					XP	High Temperature Plug (260°C)**
					XJ	High Temperature Jack (260°C)**
					DP	Duplex Plug
					DJ	Duplex Jack

* 1.5mm and 3.0mm diameter.
** Standard size Plugs and Jacks only.

Model No. Example: **MTC-I3.0K310-300MP** (Mineral Insulated Thermocouple with Connector, Isolated Junction, 3mm diameter, Type K, 300mm Stainless Steel sheath with Mini Plug connector).

Note: The above covers the more common Thermocouple probes. We can supply probes to your particular application.

THERMOCOUPLE WITH PROTECTION HEAD

MTH/MTHP Series

Mineral Insulated Thermocouples with Protection Head and Process Fitting

MTHP Probe with Large Head

- K, J, T and N Thermocouple types
- Temperature range from -270~1600°C
- Isolated and bonded hot junctions
- Sheath diameters from 3.0mm to 10.8mm
- Various protection heads: Aluminium, Polypropylene, Cast Stainless Steel
- Optional head mount transmitters: XU2HI and dTRANS T01-B-Ex HART®/Ex

Code	Specifications
MTH-I6.0K310-xxx-SA	MTH Probe, Small Aluminium head, 310SS, Type K, 6mmØ Lengths: 100, 150, 200, 250, 300, 350mm (Specify)
MTH-I6.0K310-400-SA	MTH Probe, Small Aluminium head, 310SS, Type K, 6mmØ x 400mm
MTH-I6.0K310-500-SA	MTH Probe, Small Aluminium head, 310SS, Type K, 6mmØ x 500mm
MTH-I6.0K310-xxx-LA	MTH Probe, Large Aluminium head, 310SS, Type K, 6mmØ Lengths: 100, 150, 200, 250, 300, 350mm (Specify)
MTHP-I6.0K310-xxx-SA	MTHP Probe, Small Aluminium head, 1/2"BSPT, 310SS, Type K, 6mmØ Lengths: 100, 150, 200, 250, 300, 350mm (Specify)
MTHP-I6.0K310-xxx-LA	MTHP Probe, Large Aluminium head, 1/2"BSPT, 310SS, Type K, 6mmØ Lengths: 100, 150, 200, 250, 300, 350mm (Specify)

xxx = Specify length required when ordering.

Boiler Probes

MTH Boiler Probe

- K, J, T and N Thermocouple types
- Large Aluminium Head
- Complete with 1/2"BSPT(S13) Compression gland
- Standard 10.8mm diameter
- Various sheath materials for different requirements (310SS, Inconel 600, Nicrobell, Ceramic)

Code	Specifications
MTH-I10.8K310-250-LA-S	Boiler Probe, Type K, 10.8mmØ x 250mm, 310 SS 1100°C, c/w S13 gland
MTH-I10.8K310-350-LA-S	Boiler Probe, Type K, 10.8mmØ x 350mm, 310 SS 1100°C, c/w S13 gland
MTH-I10.8K310-450-LA-S	Boiler Probe, Type K, 10.8mmØ x 450mm, 310 SS 1150°C, c/w S13 gland
MTH-I10.8K600-250-LA-S	Boiler Probe, Type K, 10.8mmØ x 250mm, Inconel 1200°C, c/w S13 gland
MTH-I10.8K600-350-LA-S	Boiler Probe, Type K, 10.8mmØ x 350mm, Inconel 1200°C, c/w S13 gland
MTH-I10.8K600-450-LA-S	Boiler Probe, Type K, 10.8mmØ x 450mm, Inconel 1200°C, c/w S13 gland
MTH-I10.8KNCB-250-LA-S	Boiler Probe, Type K, 10.8mmØ x 250mm, Nicrobell 1250°C, c/w S13 gland
MTH-I10.8KNCB-350-LA-S	Boiler Probe, Type K, 10.8mmØ x 350mm, Nicrobell 1250°C, c/w S13 gland
MTH-I10.8KNCB-450-LA-S	Boiler Probe, Type K, 10.8mmØ x 450mm, Nicrobell 1250°C, c/w S13 gland
MTH-MISC	MTH/MTHP Miscellaneous Probe. See Ordering Information Table.

Ordering Information MTH/MTHP Series

Item	Code	Specification
Model	MTH-	Mineral Insulated Thermocouple with Head
	MTHP-	Mineral Insulated Thermocouple with Head and 1/2" BSP Process Fitting
Hot Junction	I	Isolated Junction (Standard)
	B	Bonded Junction
Outer Diameter*	3.0	Millimetres
	4.5	Millimetres
	6.0	Millimetres
	10.8	Millimetres
	X	Other (Specify)
Calibration	K	Thermocouple Type K (-270~1260°C)
	J	Thermocouple Type J (-210~750°C)
	T	Thermocouple Type T (-270~370°C)
	N	Thermocouple Type N (-270~1300°C)
	2K	Duplex Thermocouple Type K
	2J	Duplex Thermocouple Type J
	2T	Duplex Thermocouple Type T
	2N	Duplex Thermocouple Type N
Sheath Material	310-	Stainless Steel (K) 1100°C
	600-	Inconel ® (K) 1200°C
	NCB-	Nicrobell ® (K) 1250°C
	610-	Ceramic (Max 1200°C)
	710-	Ceramic (Max 1600°C)
	X-	Other (Specify)
Sheath Length	xxx	Milimetres* (Specify)
Protection Head	SA	Small Aluminium
	LA	Large Aluminium
	LP	Large Polypropylene (White)
	SS	Cast Stainless Steel
Accessories	N	None
	S	Stainless Compression Fitting
	B	Brass Compression Fitting
	F	Sliding Flange
	X	Others

* Sheath Length from Sheath tip to bottom of hex on process fitting.

Model No. Example: **MTH-I6.0K310-200-LA** (Mineral Insulated Thermocouple with Head, 6.0mm diameter, Type K, Stainless Steel, 200mm sheath length, large aluminium head).

Notes: - The above covers the more common Thermocouple probes. We can supply probes to your particular application.
- Probe Parts are also available - please enquire.

Accessories

Compression Fittings

Stainless steel. Different sizes available. See page 26.

Pockets

Relative to probe length, using a compression gland or the probe's process thread for support. See page 27.

XU2HN

Single RTD Temperature Input Transmitter. For mounting in a probe head. Non Isolating. See page 103.

UNIVERSAL THERMOCOUPLES

UT Series

Universal Thermocouple probes with bayonet adaptor, for Plastic injection moulding and extrusion machinery

UT Universal Thermocouple - Type K

- K and J calibration
- Isolated and non Isolated tips available
- Maximum temperature rating 350°C
- Various lead length
- Fibreglass insulated lead with stainless steel overbraid (SSOB)
- Tip Diameter: 4.7mm 310 stainless steel (others available)
- Adaptor: 1/8" BSPT and single lug (double lug available)

Code	Specifications
UT-K-2.0-A	Universal Thermocouple, Type K, 2.0m Fibreglass SSOB
UT-K-3.5-A	Universal Thermocouple, Type K, 3.5m Fibreglass SSOB
UT-K-6.5-A	Universal Thermocouple, Type K, 6.5m Fibreglass SSOB
UT-J-2.0-A	Universal Thermocouple, Type J, 2.0m Fibreglass SSOB
UT-J-3.5-A	Universal Thermocouple, Type J, 3.5m Fibreglass SSOB
UT-J-6.5-A	Universal Thermocouple, Type J, 6.5m Fibreglass SSOB
UT-A	Spare Bayonet Adaptor 1/8" BSP

Ordering Information UT Series

Item	Code			Specification
Model	UT-			Universal Thermocouple
Calibration	K			Thermocouple Type K
	J			Thermocouple Type J
Lead Length		2.0		Millimetres
		3.5		Millimetres
(Fibreglass, SS overbraid cable)		6.5		Millimetres
			N	None
Accessories			A	Bayonet Adaptor
			P	Plug

Model No. Example: **UT-K2.0-A** (Universal Thermocouple, Type K, 2 metres F/G SSOB with Bayonet adaptor).

Note: The above covers the more common Thermocouple probes. We can supply probes to your particular application.

HAND HELD THERMOCOUPLES

HHT Series

Surface, Spear and Immersion Thermocouples

- Various Models – Surface, Spear and Immersion
- Various Temperature ranges (see Technical details)
- Type 'K' thermocouple calibration
- Fitted with a 2-pin miniature plug for connection to hand-held digital thermometers, loggers, etc.

HHT-01 - Industrial Food Probe

HHT-02 - Insertion Probe

Bead Probe

HHT-03 - Mini Spear Probe

HHT-04 - Surface Probe

Code	Specifications
HHT-01	Industrial Food Probe, 4.7mmØ x 100mm, 316SS, Type K, 900mm PVC Curly cord, Spear Tip, -30~400°C
HHT-02	Insertion Probe, 3.2mmØ x 200mm 316SS, Type K, 900mm PVC Curly Cord, -30~600°C
HHT-03	Mini spear Probe, 3.2mmØ x 100mm, Type K, 900mm PVC, SS, -30~300°C
HHT-04	Surface probe, Foil Sensor, Fast response, Type K, 900mm PVC, -20~400°C
Bead Probe	Bead Tip, Type K, -100~200°C, with miniature plug and 2m Teflon cable.

The above covers the more common Hand Held Thermocouple probes. We can supply probes to your particular specification.

Ordering Information HHT Series

Item	Product Code	Thermoocouple Type	Tip Type	Sheath Outer Diameter mm	Sheath Length mm	Lead Length mm	Minimum Temp °C	Maximum Temp °C
Bead Probe	Bead Probe	K	Bead Tip	N/A	N/A	2000	-100	200*
Industrial	HHT-01	K	Spear tip	4.7	100	900	-30	400
Insertion	HHT-02	K	Round tip	3.2	200	900	-30	600
Mini-Spear	HHT-03	K	Spear tip	3.2	100	900	-30	300
Fast Response Surface	HHT-04	K	Fast response foil	14.5	N/A	900	-20	400

* Maximum temperature excluding plug.

HEAT TRANSFER PASTE

HSC

Heat Sink Compound

- Silicone based Heat Transfer compound. 35ml Syringe
- Wide operating temperature range: -50~200°C
- Excellent non-creep properties
- Low evaporation weight loss
- Excellent thermal conductivity even at high temperatures: 0.9 W/m.K

Code	Specifications
HSC	Heat Sink Compound

COMPRESSION FITTINGS

S Series

Stainless Steel Compression Glands to use with temperature probes

Compression gland fitted

| Code	Specifications
S1	Compression Fitting 1/4" bore 1/4"BSP
S2	Compression Fitting 1/4" bore 1/2"BSP
S3	Compression Fitting 3/16" bore 1/8"BSP
S4	Compression Fitting 3mm bore 1/4"BSP
S5	Compression Fitting 6mm bore 1/4"BSP
S6	Compression Fitting 1/8" bore 1/4"BSP
S7	Compression Fitting 1/8" bore 1/8"BSP
S8	Compression Fitting 3/16" bore 1/4"BSP
S9	Compression Fitting 1/4" bore 3/8"BSP
S11	Compression Fitting 6mm bore 3/8"BSP
S12	Compression Fitting 6mm bore 1/2"BSP
S13	Compression Fitting 10.8mm bore 1/2"BSP
S14	Compression Fitting 1/4"BSP CP Brass

POCKETS

P1 / P2

Fabricated Construction Pockets to use with temperature probes

P1 Pocket

P1 – Pocket Fabricated construction

- Stem Diameter: OD 9.5mm, ID 7mm.
- Lengths: 70, 120, 170, 220, 270mm.
- 316 Stainless steel
- Process connection: 1/2" BSPT
- Instrument connection: 1/4" BSPP

P2 Pocket

P2 – Pocket Fabricated construction

- Stem Diameter: OD 9.5mm, ID 7mm.
- Lengths: 120, 170, 220, 270mm.
- 316 Stainless steel
- Process connection: 1/2" BSPT
- Instrument connection: 1/2"BSPP
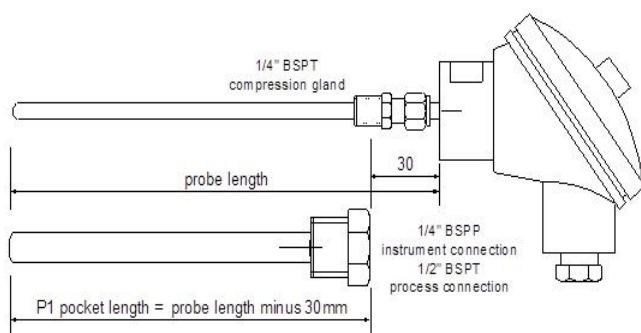
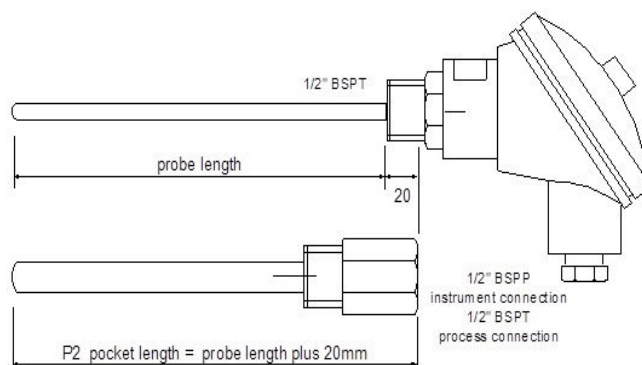The **P1 pocket length**, relative to the probe length, using a compression gland for probe support.

The **P2 pocket length**, relative to the probe length, using the probe's process thread for support.

Code	Specifications
P1-070	70mm P1 Pocket to fit 100mm stem 1/4"BSP
P1-120	120mm P1 Pocket to fit 150mm stem 1/4"BSP
P1-170	170mm P1 Pocket to fit 200mm stem 1/4"BSP
P1-220	220mm P1 Pocket to fit 250mm stem 1/4"BSP
P1-270	270mm P1 Pocket to fit 300mm stem 1/4"BSP
P2-070	70mm P2 Pocket to fit 50mm stem 1/2"BSP
P2-120	120mm P2 Pocket to fit 100mm stem 1/2"BSP
P2-170	170mm P2 Pocket to fit 150mm stem 1/2"BSP
P2-220	220mm P2 Pocket to fit 200mm stem 1/2"BSP
P2-270	270mm P2 Pocket to fit 250mm stem 1/2"BSP

BARSTOCK THERMOWELLS

BT Series

Barstock Threaded Thermowells

- 316 Stainless steel
- Turned from one piece of metal for high pressure applications
- Process connection: 1/2"BSPT
- Instrument connection: 1/2" BSPF
- Stem: Diameter: OD 15mm, ID 6.5mm
- Lengths: 50, 75, 100, 125, 150, 200, 250mm

Code	Specifications
BT-50	50mm Thermowell for 75mm probe 1/2"BSPT
BT-75	75mm Thermowell for 100mm probe 1/2"BSPT
BT-125	125mm Thermowell for 150mm probe 1/2"BSPT

THERMOCOUPLE CONNECTORS

Mini Series

**Flat pin- Thermocouple Connectors**

Panel mount Mini Jacks

Mini Plugs and Mini Jacks

Mini Plug with Cable Clamp

Code	Specifications
PH110K	Mini Plug, Type K, Flat Pin
PH110J	Mini Plug, Type J, Flat Pin
PH110T	Mini Plug, Type T, Flat Pin
PH120K	Mini Jack, Type K, Flat Pin
PH120J	Mini Jack, Type J, Flat Pin
PH120T	Mini Jack, Type T, Flat Pin
PH130K	Mini Panel Mount Jack, Type K
PH130J	Mini Panel Mount Jack, Type J
PH130T	Mini Panel Mount Jack, Type T
PH140	Mini Cable Clamp
PH565	Mini 5 way Panel for Panel Mount Jack

Standard Series

Round pin- Thermocouple Connectors

Standard Panel mount Jacks

Standard Plugs and Standard Jacks

Standard Plug with Cable Clamp
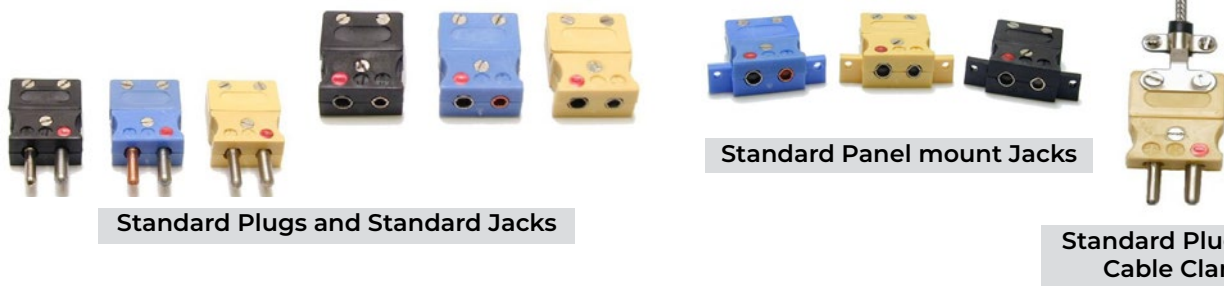
Code	Specifications
PH010K	Standard Plug, Type K, Round Pin
PH010R	Standard Plug, Type R, Round Pin
PH010J	Standard Plug, Type J, Round Pin
PH010T	Standard Plug, Type T, Round Pin
PH010N	Standard Plug, Type N, Round Pin
PH012K	Standard Plug, Type K, High Temperature (260°C)
PH020K	Standard Jack, Type K, Round Pin
PH020J	Standard Jack, Type J, Round Pin
PH020N	Standard Jack, Type N, Round Pin
PH020R	Standard Jack, Type R, Round Pin
PH020T	Standard Jack, Type T, Round Pin
PH022K	Standard Jack, Type K, High Temperature (260°C)
PH030K	Standard Panel Mount Jack, Type K
PH030J	Standard Panel Mount Jack, Type J
PH030R	Standard Panel Mount Jack, Type R
PH030T	Standard Panel Mount Jack, Type T
PH40	Standard Cable Clamp
PH551	Standard 6 way Panel for Panel Mount Jack

FLANGES

F1 / F2

Flanges for temperature probes

F1 Flange

F2 Flange

Code	Specifications
F1-4.8	Sliding flange small. Diameter OD 50mm, ID 4.8mm
F1-6.0	Sliding flange small. Diameter OD 50mm, ID 6.0mm
F1-6.4	Sliding flange small. Diameter OD 50mm, ID 6.4mm
F2	Sliding flange large. Diameter OD 100mm, ID 24.5mm (Used with LPN-H-D)

CABLE

Cable

RTD, Thermocouple and Data Cable

Thermocouple Grade Cable

Code	Type	Insulation Description	CSA	Size	AWG	Cable Temp
G/G-24F-K	K	Fibreglass/Fibreglass	0.22	7/0.2	24	400°C
G/GS-24F-K	K	Fibreglass/Fibreglass. SS Overbraid	0.22	7/0.2	24	400°C
G/G-30-KK	KK	FEP/FEP Teflon. High Accuracy	0.05	1/0.25	30	200°C
Tex/Tex-24F-KK	KK	Teflon. High Accuracy	0.22	7/0.2	24	260°C
G/G-24F-J	J	Fibreglass/Fibreglass	0.22	7/0.2	24	400°C
G/GS-24F-J	J	Fibreglass/Fibreglass. SS Overbraid	0.22	7/0.2	24	400°C
Tex/Tex-24F-J	J	Teflon	0.22	7/0.2	24	260°C
Tex/Tex-30-TT	TT	FEP/FEP Teflon. High Accuracy	0.05	1/0.25	30	200°C

Thermocouple Extension Cable

Code	Type	Insulation Description	CSA	Size	AWG	Cable Temp
P/P-24F-KX	KX	PVC/PVC	0.22	7/0.2	24	105°C
UP/ALPTW-20-KX	KX	PVC/Mylar/PVC Polyester Aluminium Tape Shield	0.5	1/0.8	20	105°C
P/P-24F-JX	JX	PVC/PVC	0.22	7/0.2	24	105°C
UP/ALPTW-20F-JX	JX	PVC/Mylar/PVC Polyester Auminium Tape Shield	0.5	7/0.2	20	105°C

RTD - Instrument Cable

Code	Cores	Insulation Description	CSA	Size	AWG	Cable Temp
3C-PVC	3	PVC/PVC. Black.	0.5	16/0.2	20	-5~105°C
4C-PVC-SCR	4	PVC/PVC. Foil screened. Grey	0.22	7/0.2	24	-5~80°C
3C-SIL	3	Silicone rubber. Grey	0.25	14/0.15	23	-60~180°C
3C-PFA	3	PFA Teflon. Foil screened. White	0.22	7/0.2	24	-190~260°C
4C-PTFE	4	PTFE Teflon. Foil screened. White	0.22	7/0.2	23	-180~260°C

Data Cable

Code	Pairs	Insulation Description	CSA	Size	AWG	Cable Temp
DPF2702	1	PVC/PVC Screened, RS485	0.22	7/0.2	24	75°C
DPF4702	2	PVC/PVC Screened, RS422	0.22	7/0.2	24	75°C
DPF6702	3	PVC/PVC Screened	0.22	7/0.2	24	75°C

Armour Flex

Code	Insulation Description	Cable Temp
ARM3.5-5MM	Armour Flex Cable , 3.5 ~5mm diameter, 304SS	See cable
ARM4-7MM	Armour Flex Cable , 4~7mm diameter, 304SS	See cable

Note: Other cable types are available on request.

PyroCouple

CALEX
ELECTRONICS LIMITED

### Simple Pyrometer with Analogue Output

PC301HT-0

- Temperature range: -20°C~500°C
- Fixed emissivity setting: 0.95
- 4~20mA Output standard. Others available: Type K or J thermocouple, or 0~50 mV output options
- Fast response with high stability
- Stainless steel 316 housing
- Sealed to IP65
- Ideal for measuring non-reflective non-metals, or painted metal surfaces

Features

- Accuracy: ±1% of reading or ±1°C
- Emissivity setting: Fixed at 0.95
- Response time, t90: 210 ms (90% response)
- Spectral range: 8 to 14 µm
- Dimensions: 18 x 103 mm
- Thread mounting: M16 x 1mm pitch
- Cable length: 1m
- Weight with cable: 95g

Electrical Installation
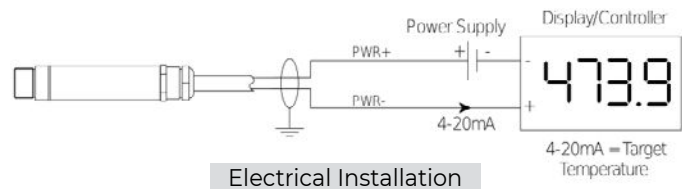
Code	Specifications
PC151LT-0	Field of view: 15:1 divergent optics, Temperature Range: -20~100°C
PC151MT-0	Field of view: 15:1 divergent optics, Temperature Range: 0~250°C
PC301HT-0	Field of view: 30:1 divergent optics, Temperature Range: 0~500°C
PC301LT-0	Field of view: 30:1 divergent optics, Temperature Range: -20~100°C
WJ	Air/water cooled jacket with air purge collar. (Note: Must be ordered with sensor; cannot be retrofitted)
APSN	Air Purge Collar
ABS	Adjustable Mounting Bracket

More combinations of optics, temperature range and output are available, please contact us.

Extended Cable

The sensor is supplied with a 1-metre cable as standard.

We can provide the sensor factory-fitted with a longer cable (up to 30 metres).

Alternatively you can extend it to any length, depending on the sensor's output type (4-20mA is best suited for long distances).

Accessories

APSN
Air purge collar for Calex pyrometers

WJ
Air or water cooling for Calex pyrometers

ABS
Adjustable and Fixed Mounting Brackets

ST633

Low Cost Handheld Infrared Thermometer

- Low-cost, gun-style infrared thermometer
- Temperature range: -35°C to 630°C
- Laser sighting with on/off switch
- Selectable emissivity setting, ideal for use on rubber, wood, asphalt, plastics, painted surfaces, organic materials and many more
- Backlit display
- Audible alarms
- Not designed or approved for fever detection

Code	Specifications
ST633	Low-cost handheld pocket infrared thermometer

ST642

Configurable Handheld Infrared Thermometer with Thermocouple Input

- Wide temperature range
- Built-in laser pointer to improve aim
- Narrow field of view
- Input for type K thermocouple
- Adjustable emissivity setting
- Adjustable high and low alarms, audible and visual
- Backlit display with Reading Hold
- °C / °F switchable
- Fast sampling time
- Auto-hold and power off
- High quality construction

Code	Specifications
ST642	General-purpose handheld infrared thermometer with Type K thermocouple input

	ST633	ST642
Emissivity Setting	Selectable 0.95, 0.7, 0.3	Adjustable 0.1 to 1.0
Type K Thermocouple Input	NO	YES
eSmart Emissivity Correction	NO	YES
Colour Changing Display for Alarm	NO	YES
Tripod Mounting Thread	NO	YES
Audible Alarm	YES	YES
°C/°F Switchable	YES	YES
Backlight	YES	YES
Max/Min/Avg/ΔT	YES	YES
Carrying case included	YES	YES
10 Point Memory	YES	NO

HAND HELD THERMOMETERS

Center 370

CENTER®

RTD Thermometer complete with Probe

Designed for the food and beverage industry, the Center 370 offers some exceptional value for money. The Center 370 RTD Thermometer comes complete with a spear tip probe, 125mm long, made easily skewering meat, poultry, breads and cheeses.

Features:
- IP67 water proof housing
- Class A Pt100 probe (included, cable length = 1.4m)
- Min / Max / Avg temperature function
- Backlit LCD Display
- Battery indication
- Range: -100~300°C
- Accuracy: ±0.1% of reading or ±0.4°C
- Resolution: 0.1°C
- Dimensions: 150 x 66 x 31mm
- Weight: Approx. 175g

Code	Specifications
Center 370	Hand-held RTD Thermometer complete with RTD Pt100 probe
Options:	
TP-R01	Spare Pt100 Probe, 3.3mmØ x 120mm, spear tip, complete with handle and 1.4m of cable
TP-R500	Spare Pt100 Probe, 3.0mmØ x 500mm, rounded tip, complete with handle and 1m of cable
VS Certificate Cen-370	Verifiable Source Calibration Certificate for Center 370
Certificate Cen-370	IANZ Calibration Certificate for Center 370, 2 Points (0°C and 100°C).

Note: We can also custom build an RTD probe to your specifications for use with the Center 370.

Precision RTD Thermometer

- Precision RTD Pt100 probe (included, cable length = 1.4m)
- High Accuracy: ±0.05% of reading or ±0.1°C
- Resolution: 0.01°C
- Min / Max temperature function
- Backlit LCD Dual Display
- Data hold function
- Relative function
- Battery indication
- Range: -100~400°C
- Dimensions: 185 x 65 x 36mm
- Weight: Approx. 360g
- Auto power off
- User Offset adjustable
- Tilt stand

Code	Specifications
Center 375	Hand-held RTD Precision Thermometer complete with RTD Pt100 probe. 100 Manual recording data memory included on meter readout function.
Center 376	Hand-held Data Logging RTD Precision Thermometer / Datalogger complete with RTD Pt100 probe • Data logging; 16,000 records • Records Temperature, Time and Date of Measurement • Includes Windows software and USB download cable

Accessories:

TP-R04	Spare Pt100 Probe, 4.8mmØ x 230mm, rounded tip, handle and 1.4m of cable

Note: We can also custom build an RTD probe to your specifications for use with the Center 375 or Center 376.

YC-305/307

Thermocouple Thermometer

- High accuracy
- °C/°F selectable
- Display resolution selectable 1°/0.1°
- Data hold
- Max record
- Off set adjustment

Applications
- Temperature Measurement
- Science laboratory
- Checking freezing equipment
- Industrial use

See Probes available on page 25

Code	Specifications
YC-305	Thermocouple Thermometer, Type K, One Input
YC-307	Thermocouple Thermometer, Type K, Two Inputs
YC-H	Spare Holster for the above displays

DIGITAL THERMOMETERS

YC-RT-352

Solar Panel Thermometer

- Measuring range: -50~200°C
- Front flange mounting
- Temperature unit °C/°F selectable
- Back up battery
- Splash proof panel
- Waterproof sensor

Code	Specifications
YC-RT-352	Solar Panel Thermometer

YC-TP101

Digital Stem Thermometer

- Measurement Range: -50 °C ~ 300 °C (-58 °F~572 °F)
- Accuracy: ±1 °C (±1.8 °F)
- Resolution: ±0.1°C/°F
- Stainless Steel Tube: dia. 4 mm x 145 mmL
- LCD size: 26 x 11 mm
- Battery: 1 x 1.5V "A76" size (LR44 or equivalent)
- 10 minutes auto power off function

Code	Specifications
YC-TP101	Digital Stem Thermometer

D2101

Digital thermometer with NTC sensor

- Small Panel mount LCD
- Solar powered
- High accuracy and stability
- Low power consumption
- Long lifespan
- Refrigeration and food keeping applications

Code	Specifications
D2101	Digital Thermometer with NTC sensor 29.5 x 62 x 11mm, LCD size: 12mm, Range: -40~125°C, 10m cable.

D2106

Digital thermometer with C/F Switch

- Small Surface mount LCD
- High accuracy and stability
- Low power consumption
- Long lifespan
- Refrigeration and food keeping applications.
- Switchable between °C and °F

Code	Specifications
D2106	Digital Thermometer with C/F Switch 114.5 x 28.5mm, LCD size: 12mm, Range: -50~125°C, 10m cable.

D1220

Solar Digital Thermometer

- The D1220 is a solar digital thermometer. Housed in a stainless steel case with an IP65 rating gives this display the ability to be wall mounted in areas exposed to moisture and water spray downs.

- Highly accurate, high stability, a wide range, energy efficient and a long life span all lends to the D1220 temperature display to be installed in so many applications. The most common applications being refrigeration, food storage and other such industrial areas.

Code	Specifications
D1220	Wall mount digital display with Probe and 2m of cable

PRESSURE

Pressure Transmitters

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Pressure Switches

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Differential Pressure Transmitters

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I/ P Transducers

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For the latest information & pricing check
www.intech.co.nz

MIDAS S05

JUMO

Universal Pressure Transmitter (401010)

- Measures the relative (gauge) pressure
- Welded measuring system
- Silicon sensor is resistant to overloading
- Protection: IP65
- Process connection: ¼" BSP
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~125°C
- Output: 4~20mA. 2 wire, loop powered
- M12 Electrical connection available (IP67)
- Options available (Indent)
    - Other input (including absolute) / output ranges
    - Process and Electrical connections

Code	Specifications
401010-480	-1~1.5 bar Input, 4~20mA Output, G1/4, Midas S05
401010-482	-1~5 bar Input, 4~20mA Output, G1/4, Midas S05
401010-483	-1~9 bar Input, 4~20mA Output, G1/4, Midas S05
401010-483-36	-1~9 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-484	-1~15 bar Input, 4~20mA Output, G1/4, Midas S05
401010-485	-1~24 bar Input, 4~20mA Output, G1/4, Midas S05
401010-485-36	-1~24 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-454	0~1 bar Input, 4~20mA Output, G1/4, Midas S05
401010-455	0~1.6 bar Input, 4~20mA Output, G1/4, Midas S05
401010-455-36	0~1.6 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-456	0~2.5 bar Input, 4~20mA Output, G1/4, Midas S05
401010-457	0~4 bar Input, 4~20mA Output, G1/4, Midas S05
401010-458	0~6 bar Input, 4~20mA Output, G1/4, Midas S05
401010-459	0~10 bar Input, 4~20mA Output, G1/4, Midas S05
401010-459-36	0~10 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-460	0~16 bar Input, 4~20mA Output, G1/4, Midas S05
401010-460-36	0~16 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-461	0~25 bar Input, 4~20mA Output, G1/4, Midas S05
401010-461-36	0~25 bar Input, 4~20mA Output, Round Plug M12, Midas S05
401010-462	0~40 bar Input, 4~20mA Output, G1/4, Midas S05
401010-463	0~60 bar Input, 4~20mA Output, G1/4, Midas S05

Note: Other ranges available on request.

Accessories

00409334
Cable, angled, M12x1 2m PVC, Unvented.

401010-PASB
1/4" BSPP to 1/4" BSPT Adaptor c/w Teflon Crush Washer

401010-PASN
1/4" BSPP to 1/4" NPT Adaptor c/w Teflon Crush Washer

M7
Plug in Display
Loop Powered. Input: 4~20mA, 2 wire, 4 digit. Plastic housing.

MIDAS SI

JUMO

Pressure Transmitter (401006)

For aggressive media and extra low ranges

- Ranges available between 0~250 mbar and 0~600 mbar
- Welded measuring system
- Compact design: as of 71 mm in length
- High bursting strength

Features:

- Pressure transmitter 2 wire, loop powered
- Protection IP65
- Process connection: ¼" BSP
- Wetted parts Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~125°C
- Output: 4~20mA. 2 wire, loop powered
- Load resistance RL = (US-10V) / 0.02A. max
- Midas SI ranges from 0~0.25 bar to 0~0.6 bar
- M12 Electrical connection available (IP67) (Indent only)

Code	Specifications
401006-451	0~0.25 bar Input, 4~20mA Output, G1/4, Midas SI
401006-452	0~0.4 bar Input, 4~20mA Output, G1/4, Midas SI
401006-453	0~0.6 bar Input, 4~20mA Output, G1/4, Midas SI

Note: Other ranges available on request.

MIDAS H20 HP

JUMO

Pressure Transmitter - High Pressure (401020)

Features:

- Pressure transmitter: 2 wire, loop powered
- Protection IP65
- Process connection: ¼" BSP
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -40~125°C / Ambient, -30~100°C
- Output: 4~20mA. 2 wire, loop powered. UT = 10~30Vdc
- Load resistance RL = (US-10V) / 0.02A. max
- Ranges from 0~100 to 0~600 bar
- Compact design: 35mm in length

Code	Specifications
401020-464	0~100 bar Input, 4~20mA Output, G 1/4, Midas H20 HP
401020-466	0~250 bar Input, 4~20mA Output, G 1/4, Midas H20 HP
401020-467	0~400 bar Input, 4~20mA Output, G 1/4, Midas H20 HP

Note: Other ranges available on request.

JUMO

Basic Pressure Transmitter (401002)

For water and air use only

- Ranges available from -1~60 bar relative
- Elastomer-sealed
- Compact design: as of 65 mm in length

Features:
- Pressure transmitter: 2 wire, loop powered
- Protection IP65
- Process connection: ¼" BSP
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~125°C
- Output: 4~20mA. 2 wire, loop powered
- Other output ranges, process and electrical connections available. (Indent)

Code	Specifications
401002-459	0~10 bar Input, 4-20mA Output, Midas C08
401002-459-415	0~10 bar Input, 0~10V Output, Midas C08
401002-460	0~16 bar Input, 4~20mA Output, Midas C08

Note: Other ranges available on request.

P30-504

JUMO

Pressure Transmitter (404366) with 1/2"BSP Process Connection

For liquids and gas

P30 with ½"BSP

Features:
- Pressure transmitter: 2 wire, loop powered
- Protection: IP65
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~100°C
- Output: 4~20mA. 2 wire, loop powered
- Ranges in gauge pressure from -1~600 bar
- Process connection: ½" BSP (Model -504)
- M12 Electrical connection available (IP67)
- Absolute pressure on request and Indent only

Code	Specifications
404366-451-504	0~0.25 bar, dTRANS P30 1/2"BSP Process Connection
404366-452-504	0~0.4 bar, dTRANS P30 1/2"BSP Process Connection
404366-453-504	0~0.6 bar, dTRANS P30 1/2"BSP Process Connection
404366-454-504	0~1 bar, dTRANS P30 1/2"BSP Process Connection
404366-456-504	0~2.5 bar, dTRANS P30 1/2"BSP Process Connection
404366-457-504	0~4 bar, dTRANS P30 1/2"BSP Process Connection
404366-458-504	0~6 bar, dTRANS P30 1/2"BSP Process Connection

Code	Specifications
404366-459-504	0~10 bar, dTRANS P30 1/2"BSP Process Connection
404366-460-504	0~16 bar, dTRANS P30 1/2"BSP Process Connection
404366-461-504	0~25 bar, dTRANS P30 1/2"BSP Process Connection
404366-464-504	0~100 bar, dTRANS P30 1/2"BSP Process Connection
404366-465-504	0~160 bar, dTRANS P30 1/2"BSP Process Connection
404366-466-504	0~250 bar, dTRANS P30 1/2"BSP Process Connection
404366-467-504	0~400 bar, dTRANS P30 1/2"BSP Process Connection
404366-478-504	-1~0 bar, dTRANS P30 1/2"BSP Process Connection
404366-482-504	-1~5 bar, dTRANS P30 1/2"BSP Process Connection
404366-483-504	-1~9 bar, dTRANS P30 1/2"BSP Process Connection
404366-999-504	-1~1 bar, dTRANS P30 1/2"BSP Process Connection

Note: Other ranges available on request.

Accessories

00409334	**00512341**	**P30-504-Adaptor**	**M7**
Cable, angled, M12x1 2m PVC, Unvented.	Cable, straight, M12x1 5m PVC, Vented.	1/2" BSPP to 1/2" BSPT Adaptor c/w Teflon Crush Washer	**Plug in Display** Loop Powered. Input: 4~20mA, 2 wire, 4 digit. Plastic housing.

P30-571

JUMO

Pressure Transmitter (404366) with 3/4"BSP Front Flush Process Connection

For liquids and gas

Features:

- Pressure transmitter: 2 wire, loop powered
- Protection: IP65
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~100°C
- Output: 4~20mA. 2 wire, loop powered
- Ranges in gauge pressure from -1~600 bar
- Process connection: ¾"BSP (Model -571)
- M12 Electrical connection available (IP67)
- Absolute pressure on request and Indent only

P30 with ¾" BSP

Code	Specifications
404366-414-571	0~0.1 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-451-571	0~0.25 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-452-571	0~0.4 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-453-571	0~0.6 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-454-571	0~1 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-456-571	0~2.5 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-457-571	0~4 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-458-571	0~6 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-459-571	0~10 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-460-571	0~16 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-461-571	0~25 bar, dTRANS P30 3/4" BSP Front Flush Process Connection
404366-478-571	-1~0 bar, dTRANS P30 3/4" BSP Front Flush Process Connection

Note: Other ranges available on request.

Accessories

00409334	**00512341**	**M7**
Cable, angled, M12x1 2m PVC, Unvented.	Cable, straight, M12x1 5m PVC, Vented.	**Plug in Display** Loop Powered. 4 digit. Plastic housing.

P30-613

JUMO

Pressure Transmitter (404366) with 1 ½" Triclover Process Connection

For liquids and gas

P30 with 1½"Triclover

Features:

- Pressure transmitter: 2 wire, loop powered
- Protection: IP65
- Wetted parts: Stainless steel
- Mounting position: Unrestricted
- Temperature: Medium, -30~125°C / Ambient, -20~100°C
- Output: 4~20mA. 2 wire, loop powered
- Ranges in gauge pressure from -1~600 bar
- Process connection: 1 ½" Triclover (Model -613)
- M12 Electrical connection available (IP67)
- Absolute pressure on request and Indent only

Code	Specifications
404366-451-613	0~0.25 bar, dTRANS P30 1 ½" Triclover Process Connection
404366-452-613	0~0.4 bar, dTRANS P30 1 ½" Triclover Process Connection
404366-453-613	0~0.6 bar, dTRANS P30 1 ½" Triclover Process Connection
404366-454-613	0~1 bar, dTRANS P30 1 ½" Triclover Process Connection
404366-457-613	0~4 bar, dTRANS P30 1 ½" Triclover Process Connection
404366-459-613	0~10 bar, dTRANS P30 1 ½" Triclover Process Connection

Note: Other ranges available on request.

Accessories

00409334	**00512341**	**M7**
Cable, angled, M12x1 2m PVC, Unvented.	Cable, straight, M12x1 5m PVC, Vented.	**Plug in Display** Loop Powered. 4 digit. Plastic housing.

DELOS SI

JUMO

Precision Pressure Transmitter with Switching Contacts and Display (405052)

Features:
- Measuring range: -1~60 bar relative or absolute pressure
- Adjustable scaling down to 1/4 of Full scale
- Analogue output can be freely configured mA or V
- Linearity (limit point setting) ≤ 0.1 % MSP
- Time-saving and simple configuration on the device or with setup program
- Two-colour display with alarm function
- 100°C medium temperature
- Process connection: ¼" BSP
- Protection: IP67
- Power Supply: 12~30Vdc
- Absolute pressure on request and Indent only

Code	Specifications
405052-454	0~1 bar, 1 x PNP, 1 x 4~20mA output, 1/4"BSP, DELOS SI
405052-457	0~4 bar, 1 x PNP, 1 x 4~20mA output, 1/4"BSP, DELOS SI
405052-459	0~10 bar, 1 x PNP, 1 x 4~20mA output, 1/4"BSP, DELOS SI
405052-461	0~25 bar, 1 x PNP, 1 x 4~20mA output, 1/4"BSP, DELOS SI
405052-483	-1~9 bar, 1 x PNP, 1 x 4~20mA output, 1/4"BSP, DELOS SI
Options (If required)	
00409334	Cable, angled, M12x1 2m PVC, Unvented
00507861	Connecting Y cable for programming
00456352	PC Interface with Converter USB/TTL
00522384	DELOS SI Setup software

PRESSURE SWITCHES

SQ27

Pressure Switch

Features:
- Robust pressure switcheven in severe duty applications
- Choice of body materials: 316SS, and brass
- Selectable contact, electrical connection and accesories
- Adjustable or fixed pressure
- High quality and cost effective

Use:
- Pressure control
- Safety monitoring of pressure in pipes
- Pressure control in manufacturing systems and machinery

Code	Specifications
SQ276	Pressure Switch DIN Type (1~19 Bar) - SUS316
SQ27U	Pressure Switch DIN Type (1~19 Bar) - Brass

Midas DP10

Differential Pressure Transmitter (401050)

This Differential Pressure Transmitter measures the pressure in liquid and gaseous media. The difference between the two pressures is converted into an analog output signal. The piezo-resistive silicon sensor is built into a stainless steel housing.

Features:

- Compact design as of 78 mm in length
- Output: 4~20mA, 2 wire
- Supply voltage: 10~30Vdc (for 4~20mA output)
- Operating temperature: Ambient -20~80°C
                            Medium -15~100°C
                            Storage -50~100°C
- Optional cable: Angled socket M12x1 with 2m PVC cable
- Optional mounting bracket: Angled or Straight

Code	Specifications
401050-452	0~0.4 bar Input, 4~20mA Output, G1/8 Process Connection, M12 Plug
401050-457	0~4 bar Input, 4~20mA Output, G1/8 Process Connection, M12 Plug
401050-458	0~6 bar Input, 4~20mA Output, G1/8 Process Connection, M12 Plug
401050-459	0~10 bar Input, 4~20mA Output, G1/8 Process Connection, M12 Plug
Accessories	
00409334	M12x1 Plug 2m PVC Angled Cable – Unvented
401050-AMB	Angled Mounting Bracket
401050-SMB	Straight Mounting Bracket

402006

Multi-Range Pressure and Differential Pressure Transmitter

For non-aggressive gases

Features:

- 8 measuring ranges can be configured within two basic measuring ranges:
    Basic measuring range 1: 0 (-2.5/-5/-7.5/-10) to 2.5/5/7.5/10 hPa
    Basic measuring range 2: 0 (-25/-50/-75/-100) to 25/50/75/100 hPa
- Output signal: DC 0(2) to 10 V and 0(4) to 20 mA are configurable
- Adjustable attenuation for pressures that fluctuate strongly
- Zero point adjustment possible
- Optional plug-in LCD display

Code	Specifications
402006-441	0~100mmWG adjustable dry/dry
402006-442	0~1000mmWG adjustable dry/dry
Accessories	
402006-LCD	LCD Display for 402006

JUMO

Pressure and Differential Pressure Transmitter

For Dry non-aggressive gases

Features:
- Pressure Transmitter with inductive measuring system
- Fine ranges between 0-1 bar relative
- Also ranges between 0 -1.2 bar absolute
- Maintenance-free measuring system: inductive
- Medium temperature: -10~50°C
- Characteristic line: linear or root extracted
- Adjustment of zero point and measuring range possible

Code	Specifications
404304-402	0~1 mbar, 4~20mA 3-wire, 24Vdc, Hose connection 6.6Ø x 11mm
404304-404	0~2.5 mbar, 4~20mA 3-wire, 24Vdc, Hose connection 6.6Ø x 11mm
404304-406	0~5 mbar, 4~20mA 3-wire, 24Vdc, Hose connection 6.6Ø x 11mm
404304-453	0~600 mbar, 4~20mA 3-wire, 24Vdc, Hose connection 6.6Ø x 11mm
404304-454	0~1 bar, 4~20mA 3-wire, 24Vdc, Hose connection 6.6Ø x 11mm

LPN-DP Series

Differential Pressure Transmitter

Programmable Differential Pressure Input to 4~20mA Loop Powered Output Transmitters

- Very Low Pressure Resolution
- Wide range selection
- Integral Display
- Stable Processor Technology
- Temperature Compensation
- IP67 Enclosure
- Fast Response Time
- High Accuracy & Linearity
- Compact Size
- Reverse Polarity Protection
- Easy to Install

Code	Specifications
LPN-DP-100	0~100mm WG (Differential range within ±100 to ±100 mmWG)
LPN-DP-1000	0~1000mm WG (Differential range within ±100 to ±1000 mmWG)

500 Series

ControlAir

Industrial Current to Pressure Transducer

- Low cost
- Integral volume booster
- Compact size
- Low air consumption
- Flexible Zero
- Span adjustments
- Standard process inputs
- Split ranging

Code	Specifications
500-AC	Output: 3~15 psi, Input: 4~20mA, 180 ohms, wall mount, Supply pressure: 100 psi max, 20 psi, min.
500-AD	Output: 3~27 psi, Input: 4~20mA, 220 ohms, wall mount, Supply pressure: 100 psi max, 35 psi, min.
500-AE	Output: 6~30 psi, Input: 4~20mA, 220 ohms, wall mount, Supply pressure: 100 psi max, 35 psi, min.

Note: Other ranges available on request.

PRESSURE DATA LOGGERS

See our Pressure Dataloggers:
-**GP-HR** General Purpose Data Logger on page 154
- **GP-MC** Multi Purpose Data Logger on page 160

LEVEL

Level Transmitters

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Level Switches

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For the latest information & pricing check
www.intech.co.nz

HYDROSTATIC (SUBMERSIBLE)

404391

JUMO

Level Probe for liquids

404391/000

404391/022

- Level probe for continuous level measurement in liquids
- Measuring ranges: 50 mbar to 1.6 bar (0.5 to 16 mH2O)
- Medium temperature -20~60°C
- Capacitive ceramic sensor
- Accuracy: 0.2 % MSP (linearity)
- Housing: 404391/000   Stainless steel ø41mm x 120mm / Integrated OVP
  404391/022   Plastic (PTFE) ø50mm x 91mm
- Protection IP68. EN60529 to 16m
- Cable: FEP Ø 9mm
- Accuracy: on full scale, < 0.4% min @ 20°C
- Operating temp: -20~60°C
- Temp coefficient: ±0.2% / 10°C
- Output: 4~20mA, 2 wire, loop powered. UT = 12~30Vdc
- Load resistance: max. RL < (US-12V) / 0.02A

Code	Specifications
404391/000-414-5	0~1m H2O with 5m of FEP cable, ceramic cell
404391/000-414-10	0~1m H2O with 10m of FEP cable, ceramic cell
404391/022-414	0~1m H2O with 10m of FEP cable, PTFE housing
404391/022-452	0~4m H2O with 10m of FEP cable, PTFE housing
Accessories	
404392-FILT	Pressure equalization filter for cable

Accessories

LPN-OVP

Overload Protection Unit – Standard DIN Rail Mount

404392-CH

Cable Holder

404392-BOX

Terminal box with built in pressure equalization filter

NAA-102

Terminal box with filter and integral OVP. IP65 93x93mm.

404392

Level Probe for liquids

- Level probe for continuous level measurement in liquids
- Measuring ranges: 250 mbar to 10 bar (2.5 to 100 mH2O)
- Medium temperature: 0~50°C
- Piezoresistive silicon sensor
- Accuracy: 0.3 % MSP (linearity)
- Integrated overvoltage protection
- Housing: 192mm x ø25mm, stainless steel
- Protection: IP68. EN60529 to 100m
- Cable: polyurethane Ø 9mm. FEP cable available (Indent only)
- Accuracy: on full scale, < 0.5% min @ 20°C
- Operating temp: 0~50°C
- Temp coefficient: ±0.2% / 10°C
- Output: 4~20mA, 2 wire, loop powered

Code	Specifications
404392-451	0~2.5m H2O with 10m of PUR cable
404392-452	0~4m H2O with 10m of PUR cable
404392-453	0~6m H2O with 10m of PUR cable
404392-454	0~10m H2O with 15m of PUR cable
404392-456	0~25m H2O with 30m of PUR cable
404392-457	0~40m H2O with 50m of PUR cable
Accessories	
404392-FILT	Pressure equalization filter for cable

Accessories

LPN-OVP

Overload Protection Unit – Standard DIN Rail Mount

NAA-209

Cable Mounting Wedge Clamp

404392-BOX

Terminal box with built in pressure equalization filter

404392-CH

Cable Holder

NAA-101

Terminal box with filter. IP65. 93x93mm

NAA-102

Terminal box with filter and integral OVP. IP65 93x93mm.

Hydrostatic Level Transmitters for Clean Water and Sewage

| NPK | NPK + NAW-104 | NBK | NCK |

	Nivopress NFK* / NPK / NBK - General Purpose:	Nivopress NCK - Viscous Sewage/Slurry:
Range	Programmable	Fixed
Sensor Type	Piezoresistive	Capacitance
Dimensions /Housing	NFK / NPK: ø22 x 173mm, stainless steel.NBK: ø24 x 212mm, plastic	ø40 x 146mm, stainless steel
Protection	IP68	
Cable	NFK: FEP ø7mm. NPK: polyurethane ø7mm. NBK: polyurethane ø7mm	polyurethane ø7mm *FEP cable available (Indent only)
Accuracy	on full scale, <0.5%	
Process temperature	-30~60°C	
Output	4~20mA, 2 wire, loop powered UT = 12~30Vdc. **HART®** programmable	4~20mA, 2 wire, loop powered UT = 12~30Vdc
Linearity error (level)	NFK / NPK: ±0.25% / NBK: ±0.45%	±0.25%

Code	Specifications	Re-ranged down to:
NFK-41-03*	0~1m H2O with 3m of FEP cable, stainless diaphragm, SS body	0.5m
NFK-42-05*	0~2m H2O with 5m of FEP cable, stainless diaphragm, SS body	0~1m
NPK-43-10	0~5m H2O with 10m of poly cable, stainless diaphragm, SS body	0~2.5m
NPK-44-15	0~10m H2O with 15m of poly cable, stainless diaphragm, SS body	0~5m
NPK-45-25	0~20m H2O with 25m of poly cable, stainless diaphragm, SS body	0~10m
NPK-46-60	0~50m H2O with 60m of poly cable, stainless diaphragm, SS body	0~25m
NBK-43-10	0~5m H2O with 10m of poly cable, ceramic diaphragm, plastic body	0~2.5m
NCK-22-05	0~2m H2O with 5m of poly cable, ceramic diaphragm, SS body	
NCK-23-10	0~5m H2O with 10m of poly cable, ceramic diaphragm, SS body	
NCK-24-15	0~10m H2O with 15m of poly cable, ceramic diaphragm, SS body	

* NFK: Suitable for Diesel applications.   **Note**: Other ranges available on request.

Accessories

Note: See all available accesories on page 52

| **NAW-104** Sewage Adaptor for NPK | **NAW-107** Sewage Adaptor for NBK | **NAA-105** Cable Holding Sliding Sleeve 1 ½" BSP |

IN-LLT

Submersible Level Transmitter for Water Applications

- Integrated construction
- Sensor housing protection IP68
- Cost-efficient, high reliability and stability
- Housing: ø26 x 92mm, Stainless Steel
- Protection: IP68
- Cable: Polyethylene ø9mm
- Accuracy: On full scale, 0.5%
- Operating temp: -10~80°C
- Temp coefficient: ±0.2% / 10°C
- Load resistance: <(UT-12)/0.02

Code	Specifications
IN-LLT-C-1	0~1m H2O with 10m of cable, 4-20mA Output, ø26mm
IN-LLT-C-5	0~5m H2O with 10m of cable, 4-20mA Output, ø26mm
IN-LLT-V-5	0~5m H2O with 10m of cable, 0~5Vdc Output, ø26mm

Note: See all available accesories on page 52

IN-LLT-C17

Submersible Level Transmitter - Slim Diameter

- Integrated construction
- Sensor housing protection IP68
- Cost-efficient, high reliability and stability
- Housing: ø**17**mm x 92mm Stainless Steel
- Protection: IP68
- Cable: Polyethylene ø9mm
- Accuracy: On full scale, 0.5%
- Operating temp: -10~80°C
- Temp coefficient: ±0.2% / 10°C
- Load resistance: <(UT-12)/0.02

Code	Specifications
IN-LLT-C17-10	0~10m H2O with 15m of cable, ø17mm
IN-LLT-C17-20	0~20m H2O with 30m of cable, ø17mm
IN-LLT-C17-50	0~50m H2O with 60m of cable, ø17mm
IN-LLT-C17-100	0~100m H2O with 110m of cable, ø17mm

Note: See all available accesories on page 52

Accessories

Common Accessories for Level Transmitters

LPN-OVP

Overload Protection Unit – Standard DIN Rail Mount

NAA-209

Cable Mounting Wedge Clamp

404392-BOX

Terminal box with built in pressure equalization filter

404392-CH

Cable Holder

NAA-101

Terminal box with filter. IP65. 93x93mm

NAA-102

Terminal box with filter and integral OVP. IP65 93x93mm.

NAA-105

Cable Holding Sliding Sleeve 1 ½" BSP

SAT-304-0

HART® USB Modem

SAT-504-2
HART® USB Modem + power supply for transmitter + Bluetooth®

HYDROSTATIC LEVEL AND PRESSURE

NIVOPRESS D

Hydrostatic Level and Pressure Transmitters

Features:

- Mount: 1.5" BSP
- Housing: Plastic or Aluminium
- Protection: IP67
- Wetted parts: Stainless steel
- Accuracy: < 0.25% F.S.O.
- Turn down: ~1 : 2
- Operating temp: -30~70°C
- Medium: -25~125°C
- Output: 4~20mA
              2 wire, loop powered.
              UT = 12~30Vdc
- Load resistance: max. RL = (US-12V) / 0.02A

Applications

- Most liquids and masses in tanks and vessels
- Chemicals with dense vapour or gas layers above the surface
- Foaming liquids
- Viscous or corrosive materials

Code	Specifications
DTF-611-2	0~0.16 bar Overpressure: 0.5 bar, 1.5"BSP, Plastic body
DTF-621-2	0~0.25 bar Overpressure: 1 bar, 1.5"BSP, Plastic body
DTF-631-2	0~0.4 bar Overpressure: 1 bar, 1.5"BSP, Plastic body
DTF-651-2	0~1 bar Overpressure: 3 bar, 1.5"BSP, Plastic body
Options	
	SAP-203 Plug-in display module
	Aluminium housing
	Triclamp Fitting, 2 inch
	HART® Communication

ULTRASONIC FOR LIQUIDS

EasyTREK SP-500

Ultrasonic Integrated Level Transmitter for Liquids

Features:

- Transducer material: Polypropylene
- Standard 5m lead (up to 30m length available. indent only)
- Protection: IP68
- Ambient temperature: -30~80°C
- Process temperature: -30~90°C
- Pressure: 0.5~3 bar (absolute)
- Beam angle: 6°
- Process Connection BSP Thread
- Power supply: 2-wire: 12~36Vdc
- Outputs: 4~20mA + HART® 7
- Communication: HART® 7 protocol. (HART Only)
- Accuracy: 0.1% of measured distance + 0.05% of range

Applications

- For liquid level measurement, open channel flow metering.
- Wide application area from wastewater to aggressive chemicals.
- Level measurement in basins, wells, sumps, lift-stations.
- Suitable for level measurement of hydrocarbons, acids, water based media.

Code	Specifications
SPA-590-4	0.18~5m Ultrasonic Transmitter, 4-20mA + HART®
Accessories	
SAA-101	Fast connection gland for 1" pipe mounting
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

Note: Other ranges and cable lenghts are available on request

EchoTREK

Ultrasonic Compact Level Transmitter for Liquids

- 2 or 4 wire integrated transmitter
- Non-contact level metering
- Narrow 5° beam angle
- Excellent signal processing
- Temperature compensated
- Secondary lightning protection
- 32 point linearisation
- PP, PVDF, PTFE housing and transducers
- Plug-in display module
- Plastic, aluminium or stainless steel housing
- Level and volume measurement and display
- Open channel flow measurement
- Fail-safe indication

TYPE	EchoTREK SE/SG-300	EchoTREK ST/SB-400
System	2-wire	4-wire
Accuracy	± (0.2 % of measured distance +0.05 % of range)	
Analogue Output	4~20mA	
Relay Output	SPDT, 30 V DC, 1A DC	#1 SPDT, 250 V AC, 3 A AC1 #2 SPDT, 30 V DC, 1 A DC
Display	SAP-200: 6-digit plug-in LCD display	
Digital Communication	HART®	
Ambient temperature	-25~70 °C	
Pressure (absolute)	0.5~3 bar with stainless steel transducer: 0.9~1.1 bar	
Power supply	12~36Vdc	85~255Vac / 20~28Vac/dc
Housing / Transducer material	Plastic, PBT, glass fibre reinforced / Polypropylene (PP)	
Ingress Protection	Transducer: IP68, Housing: IP67	

Code	Specifications
2 Wire Transmitters	
SEP-390-2	0.2~4m, 80kHz, Mount: 1.5" BSP, 4~20mA
SEP-380-2	0.25~6m, 80kHz, Mount: 2" BSP, 4~20mA
SEP-370-2	0.35~8m, 60kHz, Mount: 2" BSP, 4~20mA
4 Wire Transmitters	
STP-490-2	0.2~4m, 80kHz, Mount: 1.5"BSP, 4~20mA + 2 x Relay, 24Vac/dc
STP-480-2	0.25~6m, 80kHz, Mount: 2"BSP, 4~20mA + 2 x Relay, 24Vac/dc
STP-480-1	0.25~6m, 80kHz, Mount: 2"BSP, 4~20mA + 2 x Relay, 85~255Vac
STP-470-2	0.35~8m, 60kHz, Mount: 2"BSP, 4~20mA + 2 x Relay, 24Vac/dc
Options	
	HART® Communication
	Relay Output
	Data logging feature
	Mounting bracket 200mm
	Housing Material of Aluminium or Stainless Steel
Accesories	
SAP-200	Plug-in display module
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

ULTRASONIC FOR SOLIDS

EchoTREK STD-300 Series

Ultrasonic Compact Level Transmitter for Solids

- · 4-wire compact transmitters
- · Full temperature compensation
- · Housing: Powder coated aluminium
- · Protection: Housing, IP67 / Sensor, IP65
- · Transducer: Closed cell polyurethane foam sensor face
        Polypropylene sensor housing
- · Beam angle: 5°
- · Ambient temp: -25~60°C
- · Process temp: -30~75°C
- · Pressure: 0.7~1.1 bar (absolute)
- · Power supply: 85~255Vac. 50/60Hz. 6.8VA
        11.4~40Vdc 4.1W / 11.4~28Vac 4.6A
- · Outputs: 4~20mA, 600ohm, galv isolated. / Relay, SPDT, 250Vac / 3amp, ac1.

Code	Specifications
STD-34J-2	0.6~15m (40kHz) DN150 (min size), 11.4~40Vdc & 11.4~28Vac
STD-34J-1	0.6~15m (40kHz) DN150 (min size), 85~255Vac
STD-33J-2	0.6~30m (30kHz), DN150 (min size), 11.4~40Vdc & 11.4~28Vac
Options	
SAP-100	Plug-in display module
	HART® Communication
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

CAPACITIVE

NIVOCAP

2 Wire Compact Capacitance Level Transmitters

For liquids

- Housing: Plastic (PBT glass fibre reinforced, flame retardant)
  Aluminium and SS models also available
- Protection: IP67
- Mount: 1" BSP
- Wetted parts: 316 stainless steel
- Probe: Partly or fully coated steel cable
- Probe length: Rod, min 0.2m. max 3.0m. / Cable, min 1m. max 20m
- Ambient temp: -25~70°C
- Medium temp: -25~200°C
- Pressure: Max. 16 bar at 200°C (Absolute)
- Capacitance: ~600pF/m
- Power Supply: 12~36Vdc max. 22 mA
- Output: 4~20mA, 2 wire / HART® Communication
- Load resistance: max. RL = (US-12V) / 0.02A

Code	Specifications
CTR-302-2	Insulated rod, 0.2m, 1" BSP / Fully PFA insulated SS, Plastic housing
CTR-305-2	Insulated rod, 0.5m, 1" BSP / Fully PFA insulated SS, Plastic housing
CTR-310-2	Insulated rod, 1.0m, 1" BSP / Fully PFA insulated SS, Plastic housing
CTP-302-2	Partially insulated rod, 0.2m, 1" BSP / Fully PFA insulated SS, Plastic housing
Accessories	
SAP-202	Plug-in display module
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

Note: Other models are available on request.

SB2110

Capacitance / Admittance Level Switch for solids and liquids

- Time delay function from 0-30 seconds
- IP65 housing protection
- 5A/250Vac output DPDT
- High/low failsafe
- Alarm testing
- Explosion Proof model available
- Anti-Viscosity
- Easy installation
- Stable; Not affected by temperature
- Highest temperature tolerance of 550°C
- Explosion-proof 450°C
- Applicable in liquid, syrup, solid, powder and surface level detection

Applications:
- Storage Tanks, Containers, Wells, Reservoirs and bins containing any liquids, powders or pellets that require precise level detection and control.

Code	Specifications
SB2110	RF Capacitance /Admittance Level Switch 3/4"PT

Note: Other models available - contact Intech

GUIDED MICROWAVE

MicroTREK

NIVELCO PROCESS CONTROL CO

Guided Microwave Level Transmitters

2-wire TDR level transmitter for liquids and free-flowing solids with stainless steel probe with or without plastic coating.

Main Features:
- 2 wire compact transmitter
- Accuracy: ±5 or ±20mm
- High pressure and high-temperature range
- Wide range of probes
- Extremely small deadband
- Rod, cable, or coaxial probe versions
- Plug-in graphic display module
- Explosion-proof variants available
- Plastic, aluminum or stainless steel housing
- Media with turbulent surface, dense dust, vapor or pressurized gas layers above the product surface
- For all tank shapes, for narrow vessels
- Heavy industrial applications

Specifications:
- Power supply: 18~35Vdc
- Ambient temperature: −30~60°C
- Process temperature: −30~200°C
- Process pressure: −1~40 bar
- Measuring range: 0~24 m
- Output: 4~20mA + HART®
- Ingress protection: IP67
- Approvals: ATEX, IEC Ex, INMETRO

Code	Specifications
HTK-700-4	Cable Probe 1"BSP, 7m long, 4~20mA
Options	
SAP-300	Graphic Plug-in display module

Note: Other models available - contact Intech

NON-CONTACT RADAR

PiloTREK

NIVELCO PROCESS CONTROL CO

Non-Contact Radar Level Transmitter

- 2 Wire 24 GHz K-band RADAR
- Easy installation due to narrow Antennas
- 24M measuring range for liquids and slurries
- ±3mm accuracy
- Plug in graphical module
- Er > 1.9
- Not affected by steam, vacuum or vapors (some range reduction may be required)
- Easy to set up
- Other models available on request

Code	Specifications
WEP-140-4	Radar Transmitter with PP encapsulated antenna housing, Horn DN40 / 1.5"BSP, 4~20mA+ HART®
Options	
WAT-14T-0	PTFE Enclosure with 2" Triclamp 1.4571 connection for DN40 antenna
SAP-300	Graphic Plug-in display module
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

PiloTREK WP-200

Integrated Non-Contact Microwave Level Transmitters

Features
- 2-wire 80 GHz (W-band) radar
- Measuring range up to 30 m for liquids and masses
- Accuracy of ±2 mm
- Easy to install due to small antenna diameter
- 1", 1½" encapsulated horn antenna
- Integrated design with IP68 protection
- User-friendly threshold management

Applications
- For measuring the level of liquids, emulsions, and other media chemicals up to 30 m
- For large-particle bulk solids
- Storage tanks, chemical tanks, open pits, sumps, wells
- Measurement through a plastic tank roof
- For material prone to vapor formation
- For measuring liquids with a gas cushion
- It can also be used in a vacuum
- Open-channel flow measurement
- Water and wastewater industry
- Energy industry / Plant utilities
- Food & Beverage
- Pharmaceutical industry
- Chemical industry
- Marine applications
- Agriculture
- Construction materials
- Heavy industry
- Packaging industry

Code	Specifications
WPA-214-4	Integrated radar level transmitter, 10m measurement range, 1.5"BSP
WPA-224-4	Integrated radar level transmitter, 20m measurement range, 1.5"BSP
Options	
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

MAGNETOSTRICTIVE

NIVOTRACK

Magnetostrictive Level Transmitter

Main Features:
- 2wire compact and mini compact transmitter
- 0.1 mm or 1 mm resolution
- Wetted parts: stainless steel or plastic
- Plug-in graphic display module
- 99-point linearisation
- Distance, level and volume measurement
- Explosion-proof variants available
- Interface measurement
- Chemicals, solvents, hydrocarbons

Specifications:
- Power supply: 12.5~36Vdc
- Ambient temperature: −40~70°C
- Process temperature: −40~90°C
- Process pressure: up to 25 bar
- Measuring range: 0~15 m
- Output: 4~20mA, HART®
- Process connection: 1", 2" or flanges
- Ingress protection: IP67 (IP68)
- Approvals: ATEX, FM, IEC Ex, EAC, OIML R 85

Code	Specifications
MTA-505-1	1" BSP, Aluminium (paint coated), 0.5m probe, 0.1mm Resolution
MTA-505-2	1" BSP, Aluminium (paint coated), 0.5m probe, 1mm Resolution
MTA-605-1	1" BSP, Plastic, PBT, 0.5m probe, 0.1mm Resolution
MTA-605-2	1" BSP, Plastic, PBT, 0.5m probe, 1mm Resolution
Options	
SAP-300	Graphic Plug-in display module
Accesories	
SAT-304-0	HART® USB Modem
SAT-504-2	HART® USB/Bluetooth Modem

FLOAT LEVEL SWITCHES

4100 Series

THOMAS PRODUCTS LTD.

Side Mounted Level Switches

4100-24227   **4100-24221**

- Stem & Housing Material: Brass
- Float Material: 316SS
- Side Tank Mounting
- Mounting: 1"NPT
- Reed Switch: 20VA SPDT
- Operating Temperature: -34~150°C
- Weight: 1.5 lbs
- Dimensions: 12×7×8in
- Operating pressure: 62 bar max (2"Spherical) or 69 bar max (1" Cylindrical)
- Specific Gravity: 0.8 (Model 4100-24221) and 0.7 (model 4100-24227)

Code	Specifications
4100-24221	Float Level Switch, Side Mount, S.G. 0.8, 2" Spherical float
4100-24227	Float Level Switch, Side Mount, S.G. 0.7, 1" Cylindrical float

4200 Series

THOMAS PRODUCTS LTD.

Top Mounted Level Switches

4200-24251   **4200-41003**

- Fuel oil and chemical applications. Silicone potted, shock & vibration resistant.
- Stem and float Material: 316SS (Model 24251) Polysulfone (Model 41003)
- Mounting: 1/8"NPT Top
- Reed Switch: 20/100VA SPST
- Operating Temperature: -40~107°C (Model 24251) -40~150°C (Model 41003)
- Operating Pressure: 5bar max (Model 24251) 27bar max (Model 41003)
- Specific Gravity: 0.65 (Model 24251) 0.7 (Model 41003)

Code	Specifications
4200-24251	Level Switch, Top Mount, S.G. 0.65, 5 bar max, Polysulfone
4200-41003	Level Switch, Top Mount, S.G. 0.7, 27 bar max, 316SS

4400 Series

Side Mounted Level Switches

- Stem Material: Polysulfone
- Float Material: Polysulfone 11/16" Cylindrical
- Mounting: Side Tank ½"NPT (Model 24237)
  1/2" Bulkhead With Nut (Model 24238)
- Reed Switch: 20VA SPDT
- Operating Temperature: -40~107°C
- Operating Pressure: 10bar max
- Specific Gravity: 0.7

4400-24237   **4400-24238**

Code	Specifications
4400-24237	Level Switch, Side Mount, 1/2"NPT
4400-24238	Level Switch, Side Mount, 1/2" Bulkhead With Nut

4500 Series

Top Mounted Level Switch

- Stem Material: 316SS
- Float Material: BUNA.
- Mounting: Top Tank 1/8"NPT
- Reed Switch: 100VA SPST
- Operating Temperature: -40~110°C
- Operating Pressure: 10 bar max

Code	Specifications
4500-41104	Level Switch, Top Mount, 1/8" NPT, 316SS, 10 bar max

4700 Series

Top Mounted Level Switch

- Stem Material: 316SS
- Float Material: 316SS. 54mm Spherical.
- Mounting: Top Tank ¼"NPT
- Reed Switch: 100VA SPST
- Operating Temperature: -40~150°C
- Operating Pressure: 50 bar max
- Specific Gravity: 0.65

Code	Specifications
4700-41302	Level Switch, Top Mount, 1/4" NPT, 316SS, 50 bar max.

FC Series

Mini Float Level Switches

Plastic Models

| FCV35GD | FCH31PD | FCH51PD | FCH23FD |

TYPE	FCV35GD / FCV33FD	FCH31PD	FCH51PD	FCH23FD
Material	Polysulfone, SG 0.85. (FCV35GD) / PVDF, SG 0.85. (FCV33FDE)	-	-	-
Temperature	-20~80°C	-20~80°C	-20~80°C	-20~60°C
Pressure	4 Bar	4 Bar	4 Bar	4 Bar
Switch	50W, 240Vac / 200Vdc. SPST reed switch	50W, 240Vac / 200Vdc. SPST, N/O, reversible	50W, 240Vac / 200Vdc. SPST, N/O, reversible	50W, 240Vac / 200Vdc. SPST, N/O, reversible
Mount	1/8" BSP. Polysulfone.	1/2" NPT. Polypropylene	1/2" NPT. Polypropylene. Thread front & back of hex	16mm Bulkhead with nut. PVDF
Float	Float: 25mmØ cylindrical	Polypropylene, SG 0.65. 17.5mmØ cylindrical	Polypropylene, SG 0.55. 17.5mmØ cylindrical	PVDF, SG0.85. 17.5mmØ cylindrical

Code	Specifications
FCH23FD	Mini Float Level Switch, Side Mount, 16mm bulkhead/nut, PVDF
FCH31PD	Mini Float Level Switch, Side Mount, 1/2"NPT, PP
FCH51PD	Mini Float Level Switch, Side Mount, 1/2"NPT Front & Back, PP
FCV33FD	Mini Float Level Switch, Top Mount, 1/8"BSP, PSU Stem, PDVF float
FCV35GD	Mini Float Level Switch, Top Mount, 1/8"BSP, PSU

FDMH60C

Metal Single Switch Type

- Material: SUS 316L
- Switching Capacity Max.: 12W/SPST
- Switching Voltage Max.: 24Vdc
- Switching Current Max.: 1A
- Lead wire: Teflon
- Max Pressure: 5Kg/cm^2
- Operating Temperature: -20~120°C
- Suitable Specific Gravity: 0.75

Code	Specifications
FDMH60CBT10T	Mini Float Level Switch, 1/2" BSP, DIN Connection

Mini Float Level Switches

Stainless Steel Models

| FD4061DE | FD3062DE | FD3061DE |

TYPE	FD4061DE	FD3062DE	FD3061DE
Temperature	-10~120°C	-10~120°C	-10~200°C
Pressure	35 Bar	10 Bar	10 Bar
Switch	50W, 240Vac / 200Vdc. SPST, N/O, reversible	50W, 240Vac / 200Vdc. SPST, N/O, reversible	50W, 240Vac / 200Vdc. FD3061DA05FH: Switch: SPST, N/O only
Mount	3/8" BSP. 316SS	1/8" BSP. 316SS	1/8" BSP. 316SS
Float	316 SS, SG 0.7. 41mmØ spherical	316 SS, SG 0.7. 28mmØ cylindrical	316 SS, SG 0.7. 28mmØ cylindrical

Code	Specifications
FD3061DE	Mini Float Level Switch, Top Mount, 1/8"BSP, -10~120°C, Reversible, XLPE lead 0.3m
FD3061DA05FH	Mini Float Level Switch, Top Mount, 1/8"BSP, -10~150°C, Reversible, Silicon lead 0.5m
FD3062DE	Mini Float Level Switch, Side Mount, 1/8"BSP, -10~120°C, Reversible, XLPE lead 0.3m
FD4061DE	Mini Float Level Switch, Top Mount, 3/8"BSP, -10~120°C, Reversible, XLPE lead 0.3m
FD4061DA05TH	Mini Float Level Switch, Top Mount, 3/8"BSP, -10~200°C, Reversible, Teflon lead 0.5m

NIVOFLOAT

Float Level Switches

NW-100

NL-100

- Double-chambered float (NL-100 models)
- Special float shape (NW-100 models)
- Switching differential is adjustable by counterweight (NL-100 models)
- Maximum 20m cable length
- Medium temperature max +50 °C
- Process pressure max. 1 bar (NL-100 models)
  pressure max. 2 bar (NW-100 models)
- Can be certified for potable water
- IP68 protection

Code	Specifications
NLP-105	Float Level Switch for clean water, 5m PVC cable c/w weight
NLP-110	Float Level Switch for clean water, 10m PVC cable c/w weight
NLP-120	Float Level Switch for clean water, 20m PVC cable c/w weight
NLN-105	Float Level Switch for clean water, 5m Neoprene cable c/w weight
NLN-110	Float Level Switch for clean water, 10m Neoprene cable c/w weight
NLN-120	Float Level Switch for clean water, 20m Neoprene cable c/w weight
NWP-105	Float Level Switch for waste water, 5m PVC cable
NWP-110	Float Level Switch for waste water, 10m PVC cable

FF Series

Side Mounting Float Switches

FF20CEQ

FF81EFM

FF#0CEQ Features:
- Pressure: 15 bar
- Mounting: 1.5" BSPT
- Housing: IP65. Aluminium
- Float: 304SS, SG 0.65. 41mmØ cylindrical
- Standard temperature: -20~100°C. (FF10CEQ, FF30A3Q)
- Micro Switch: rating 5A/250Vac. (FF10CEQ)
- High temperature: -40~200°C. (FF20CEQ)
- Reed Switch: rating 1A/60w 220Vac. (FF20CEQ)

FF81EFM Features:
- Anti -Acid/Alkaline. Bulkhead mount
- Temperature: -20~80°C
- Switch: 1A/ 30W. SPDT reed switch. Magnetic actuation
- Mounting: M20 bulkhead with nut
- Cable: 3m 3 core PVC
- Float: Polypropylene, SG 0.6. 44mmØ cylindrical

Code	Specifications
FF10CEQ	Side Mount Float Switch, -20~100°C, 5A/250Vac, Microswitch, SPDT(1C)
FF20CEQ	Side Mount Float Switch, -40~200°C, 1A, 60W 220Vac/200Vdc, Reed Switch, SPDT(1C)
FF30A3Q	Side Mount Float Switch, -20~100°C, 1A, 50W 240Vac/200Vdc, Reed Switch, SPST(1A)
FF81EFM	Side Mount Float Switch, -20~80°C, 1A, 30W 220Vac/200Vdc, Reed Switch, SPDT(1C), Bulkhead mount

ROTARY PADDLE

PRO-AG

Bindicator

Roto-Bin-Dicator®PRO - Rotary Paddle Level Switches

Features

- Self-diagnostics motor/supply with LED flash codes.
- Universal power: (±10%) 85~264Vac 50/60Hz, 22~52Vdc.
- DIP switches selectable:
    - Adjustable time delay for alarm
    - Motor pause (option setting)
    - Sensitivity settings ±30% for varying material densities

Specifications

- Housing finish: Powder coated aluminium
- Process fitting: Aluminium frame neck, NPT 1-1/4"
- Base unit: M20 x 1.5" conduit entry with ordinary location approval
- Ambient temperature: -40~70°C
- Process temperature: -29~150°C
- Output relay: 8A DPDT

PRO-AG-T5

Code	Specifications
PRO-AG-S5	Side Mount Roto-Bin-Dicator® PRO complete with 5" paddle, plate & flex shaft
PRO-AG-S7	Side Mount Roto-Bin-Dicator® PRO complete with 7" paddle. plate & flex shaft
PRO-AG-T5	Top Mount Roto-Bin-Dicator® PRO complete with 5" paddle, plate & flex shaft
PRO-AG-T7	Top Mount Roto-Bin-Dicator® PRO complete with 7" paddle. plate & flex shaft
PRO-AGMAX1	Roto-Bin-Dicator® PRO Power Pack only

Accessories

H-370

Standard 4-vane paddle 304SS – 1-1/2" x 5"

H-371

Large 4-vane paddle 304SS – 2" x 7"

H-372A

1-Vane paddle; 1" x 2-7/8" with 30°Cut

H-379

1-Vane paddle 304SS; insertable with pins

H-19

Side Mounting plate, half coupling

H-192

Top Mounting plate, full coupling

H-36

Neoprene 3" Flexible shaft

H-38

Stainless Steel Shaft Coupling - used with Extensions only.

H-361

Shaft Coupling Solid Shaft 3"

EXT0.5mSHA
Extension 0.5m Shaft inner (1/8"Pipe)

EXT0.5mGUA
Guard pipe 0.5m (1 1/4" NPT SS)

EXT1.0mSHA
Extension 1m Shaft inner (1/8"Pipe)

EXT1.0mGUA
Guard pipe 1m (1 1/4" NPT SS)

Roto-Bin-Dicator® - **Rotary Paddle Level Switches**

Features
- Quick installation, no calibration required
- Long-lasting, sealed motor keeps maintenance and replacement costs low
- Extensive paddle options to adapt to a variety of applications
- Extended shaft fittings available

Specifications
- Mounting plate: Wall mount. Pipe mount optional
- Temperature: -10~70°C
- Output relay: 10amp SPDT
- Power supply: 230Vac (RB Model) 24Vdc (RD model)
- Rating: NEMA 4X (RB, RD Models)
- Flexible neoprene shaft drive

Code	Specifications
RB-HM-T5	Top Mount Roto-Bin-Dicator® complete with 5" paddle, plate & flex shaft 230Vac
RB-HM-T7	Top Mount Roto-Bin-Dicator® complete with 7" paddle, plate & flex shaft 230Vac
RB-HM-S5	Side Mount Roto-Bin-Dicator® complete with 5" paddle, plate & flex shaft 230Vac
RB-HM-S7	Side Mount Roto-Bin-Dicator® complete with 7" paddle, plate & flex shaft 230Vac
RB-HM-AX1	Roto-Bin-Dicator® Power Pack only, 230V
RD-HM-T5	Top Mount Roto-Bin-Dicator® complete with 5" paddle, plate & flex shaft 24Vdc
RD-HM-T7	Top Mount Roto-Bin-Dicator® complete with 7" paddle, plate & flex shaft 24Vdc
RD-HM-S5	Side Mount Roto-Bin-Dicator® complete with 5" paddle, plate & flex shaft 24Vdc
RD-HM-S7	Side Mount Roto-Bin-Dicator® complete with 7" paddle, plate & flex shaft 24Vdc
RD-HM-AX1	Roto-Bin-Dicator® Power Pack only, 24Vdc

Note: Please see all available accessories on previous page.

RB Rotary Paddle with 0.5m Extension Kit

Mini Roto-Bin-Dicator® - Rotary Paddle Level Switches

Features
- Level sensing of light granular solids in small bins and hoppers, i.e. plastics, granular foods, sugar, cereals and seeds
- Designed to shut the motor off during the presence of materials
- Adjustable sensitivity allowing the use in varying material density
- LED indication is visible from 15m
- Mounting: 3/4"NPT
- Temperature: -40~93°C
- Output relay: 10amp 250Vac
- Paddle: Nylon (polysulfone)

Code	Specifications
MR-1Y1	Mini Roto-Bin-Dicator® Power Pack only, 120Vac
MR-2Y1	Mini Roto-Bin-Dicator® Power Pack only, 240Vac
MR-3Y1	Mini Roto-Bin-Dicator® Power Pack only, 24Vdc
Options	
-A-1	LMR120006 - 4 vane paddle, Nylon®
-A-4	LMR120003 - Insertable paddle (banana shaped)

SE Series

Top or Side mounted Rotary Level Switches

SE380CCRG SE380ECRH SE111C155

TYPE	SE380	SE111
Temperature	-20~70°C	-10~70°C
Rotary Speed	1 RPM	1 RPM
Power Supply	240Vac, 50/60 Hz (Model S380CCR) 24Vdc (Model SE380ECR)	240Vac (Model SE111C) 24Vdc (Model SE111E)
Switch	3 amp. 250Vac, SPDT	5 amp, 250Vac, SPDT
Mounting	3/4"BSP	1" BSP or SS Flange 155mmØ 4 hole or 203mmØ 6 hole
IP Rating	IP65 / PC	IP65
Paddle	Cross or scimitar (specify)	Flat blade 100mm x 30mm

Code	Specifications
SE380CCRG	Rotary Level Switch, Cross Paddle Type, 240Vac
SE380ECRH	Rotary Level Switch, Scimitar Paddle Type, 24Vdc
SE111C155	Rotary Level Switch, 155mm x 4 Hole Flange, Flat Paddle Type, 240Vac
SE111E155	Rotary Level Switch, 155mm x 4 Hole Flange, Flat Paddle Type, 24Vdc

CONDUCTIVE

NIVOCONT K

Conductive Level Switches

KRK-512 Features:
- Level switching
- Filling-emptying control
- Selectable NO/NC relay function
- Adjustable sensitivity
- Adjustable ON/OFF delay
- Delay time indication
- AC/DC versions

KRK-622 Features:
- Monitoring of 2 independent levels in 2 tanks
- Monitoring of 2 independent levels in 1 tank
- Pumping from one tank to another
- DIP switch selection on the front panel (8 functions)
- Adjustable sensitivity (for each probe separately)
- Adjustable relay switching delay (for each probe separately)
- AC/DC versions

KKH Features:
- Probe and relay in one unit
- 1 or 2 incorporated KRK-512 electronics
- 1 or 2 independent relay outputs for pump control or differential level switching
- Selectable NO/NC relay function
- Adjustable sensitivity
- Adjustable ON/OFF delay
- Delay time indication
- AC/DC versions

KRK-512-5

KRK-622-1

KSH-204

KKH-212-5

VERSIONS

Level Switch and Probe
- DIN rail mounted 1 or 2 channel switching unit
- Probe socket with aluminium or plastic housing featuring
- 1½" BSP process connection
- Probe-rods up to 3 m (9.84 ft)
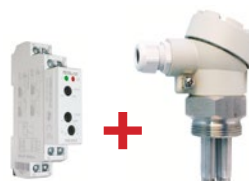
Compact Level Switch
- 1 or 2 channel switching unit in plastic housing with 1½" BSP process connection
- Probe-rods up to 3 m (9.84 ft)

Accessories

KLN-210

KSK-201

KSN-201

KLP-204

KLP-201

Product Range for Nivocont K

Code	Specifications
KRK-512-5	Conductive Level Switch, 1x SPDT relay, 8 amp, 24~240Vac/dc
KRK-622-1	Conductive Level Switch, 2x SPDT relays, 16 amp, 230Vac
KRK-622-4	Conductive Level Switch, 2x SPDT relays, 16 amp, 24Vac/dc
KKH-212-5	Compact Level Switch, single channel (3 probes) (Includes 1 x KRK-512), 1.5"BSP
KKH-222-5	Compact Level Switch, dual channel (5 probes) (Includes 2 x KRK-512), 1.5"BSP
KSH-202	Multi-probe socket, Aluminium, 2 electrodes + reference electrode, 1.5"BSP
KSH-203	Multi-probe socket, Aluminium, 3 electrodes + reference electrode, 1.5"BSP
KSH-204	Multi-probe socket, Aluminium, 4 electrodes + reference electrode, 1.5"BSP
KSH-302	Multi-probe socket, Plastic, 2 electrodes + reference electrode, 1.5"BSP
KSH-303	Multi-probe socket, Plastic, 3 electrodes + reference electrode, 1.5"BSP
KSH-304	Multi-probe socket, Plastic, 4 electrodes + reference electrode, 1.5"BSP

Probe holders and accessories

KSP-201	Single Probe socket, PP/PP, 3/8"BSP
KSS-201	Single Probe socket, Steel /PFA, 3/8"BSP
KSN-201	Single Probe socket, Stainless Steel/PFA, 3/8"BSP
KSK-201	Submersible single probe (Probe hangs on the cable)
KLN-210	Stainless Steel Electrode with M6 thread for KS and KKH. 1.0m long.
KLP-201	Separator for KSH-300 and KKH-200
KLP-204	Separator for KSH-200

VIBRATING FORK

NIVOSWITCH

NIVELCO
PROCESS CONTROL CO

Vibrating Fork Level Switches

Main Features:

- Compact and mini compact type
- Rod extension up to 3 meters (10 feet)
- Polished vibrating part
- Hygienic versions with various process connections and 0.5 micron fine polishing
- Adjustable sensitivity
- Relay or electronic output
- Switching performance does not depend on the change of liquid conductivity, dielectric constant, pressure and temperature
- Medium temperature max. +130°C (266°F)
- Output test with optional test magnet
- IP67, IP65, IP68 protection

RCM-400

TYPE	Mini compact		Compact	
	For liquids	For solids	For liquids	For solids
Insertion length	69 – 3000 mm	137 – 3000 mm	69 – 3000 mm	137 – 3000 mm
Material of wetted parts	1.4571 (316Ti) or ECTFE/PFA coating	Stainless steel 1.4571 (316Ti)	1.4571 (316Ti) or ECTFE/PFA coating	Stainless steel 1.4571 (316Ti)
Medium temp.	-40~130 °C			
Ambient temperature	-40~70°C, M12 connector: -25~70°C	-40~70°C	-30~70°C	-40~70°C
Medium pressure	max. 40 bar			
Medium density	> 0.7 kg/dm³	≥ 0.01 kg/dm³	> 0.7 kg/dm³	≥ 0.01 kg/dm³
Medium viscosity	≤ 10,000 mm²/s	-	≤ 10,000 mm²/s	-
Power supply	2-wire DC: 15~29Vdc	2-wire DC: 15~27Vdc	20~255Vac or 20~60Vdc	
	2-wire AC: 20~255Vac; 3-wire DC: 12~55Vdc			
Power consumption	AC: depending on load; DC: < 0.6 W		DC: < 3 W	
Housing Material	1.4571 stainless steel		Paint coated aluminium or plastic (PBT)	
Ingress protection	DIN connector type: IP65, M12 con. type: IP67, cable type: IP68		IP67	

Mini Compact Level switch for solids
RLH-301-3

Mini Compact Level switch for liquids with rod extended probe
RCM-402

Compact Level switch
For liquids
RFM-500

Code	Specifications
For Liquids	
RCM-400-1	Mini Compact Level Switch, 69mm probe, 2 wire AC, DIN connector, 1"BSP
RCM-400-3	Mini Compact Level Switch, 69mm probe, 3 wire DC, DIN connector, 1"BSP
RCM-401-1	Mini Compact Level Switch, 125mm probe, 2 wire AC, DIN connector, 1"BSP
RCM-401-2	Mini Compact Level Switch, 125mm probe, 2 wire AC, Cable, 1"BSP
RCM-401-3	Mini Compact Level Switch, 125mm probe, 3 wire DC, DIN connector, 1"BSP
RCR-400-3	Mini Compact Level Switch, 69mm probe, 3 wire DC, DIN connector, 2"Triclamp
RCR-400-4	Mini Compact Level Switch, 69mm probe, 3 wire DC, Cable, 2"Triclamp
RCR-401-1	Mini Compact Level Switch, 125mm probe, 2 wire AC, DIN connector, 2"Triclamp
RCR-401-3	Mini Compact Level Switch, 125mm probe, 3wire DC, DIN connector, 2"Triclamp
RFM-401-0	Compact Level Switch, 125mm probe, 1 SPDT relay, 250Vac, 8A, 1"BSP
RFM-402-0	Compact Level Switch, 200mm, 1 SPDT relay, 250Vac, 8A, 1"BSP
For Solids	
RCM-301-3	Mini Compact Level Switch, 125mm probe, 3 wire DC, connector, 1"BSP
RCM-301-4	Mini Compact Level Switch, 125mm probe, 3 wire DC, cable, 1"BSP
RLH-301-3	Mini Compact Level Switch, 137mm probe, 3 wire DC, DIN connector, 1 1/2" BSP
RRH-301-B	Compact Level Switch, 137mm probe, 1 SPDT relay: 250Vac, 8A/Ex 1/2D, 1 1/2" BSP

NIVOCONT R

NIVELCO PROCESS CONTROL CO

Vibrating Rod Level Switches

For free flowing granules and powders

RKH-500/600

Main Features:

- No moving parts
- Self-cleaning for most mediums
- Stainless steel vibrating section
- Rod (0.3–3m) or flexible cable length (1–20m)
- Plastic or aluminium housing
- Selectable density
- High or low fail-safe mode
- Selectable switching delay
- Dust-Ex models
- For grain, flour, plastic granules, cement, fly ash, etc.

RKK-600

RKR-600

Version	Standard	Rod Extended	Cable extended
Insertion length	207mm	0.3 – 3m	1 – 20m
Material of wetted parts	1.4571		Vibrating part: 1.4571 Cable: PE cover
Process connection	1½" BSP		
Medium temperature	Standard: -30~110°C High temp. version: -30~160°C		-30~80°C
Medium pressure	Max. 25 Bar		Max 6 Bar
Max load	Force: 50N; Torque: 100Nm	Torque: 100Nm	-
Medium density	Minimum 0.05 kg/dm3 (0.05 S.G.) (granular size 10 mm)		
Response time	< 2 sec or 5 sec ±1.5 sec		
Power supply	20~255Vac/dc, 20~50Vdc		
Power consumption	≤ 2.5 VA / 2 W		
Housing Material	Paint coated aluminium or plastic (PBT)		
Ingress protection	IP67		

Code	Specifications
RKH-502-1	Vibrating Rod Level Switch, Standard probe length 207mm, 1 1/2" BSP, Aluminium housing, SPDT, potential free relay; 250Vac, 8A 250Vac, 8A
RKH-602-1	Vibrating Rod Level Switch, Standard probe length 207mm, 1 1/2" BSP, Plastic housing, SPDT, potential free relay; 250Vac, 8A
RKR-605-1	Vibrating Rod Level Switch, Pipe Extended Probe 0.5m, 1 1/2" BSP, Plastic housing, SPDT, potential free relay; 250Vac, 8A
RKK-601-1	Vibrating Rod Level Switch, Cable extended probe 1m, 1 1/2" BSP, Plastic housing, SPDT, potential free relay; 250Vac, 8A

MAGNETIC COUPLING

NIVOMAG

NIVELCO
PROCESS CONTROL CO

Magnetic Coupling Level Switches

MKA-210-0

MKA-21B-0

MKG-210-0

MKA-230-1

MKA-210-4 "L" Profile

MKA-210-4 "Z" Profile

Main Features:
- Operation without power supply
- Micro-switch separated from the process
- All wetted parts stainless steel
- Side or top mounting
- Fixed or adjustable switch differential
- Submersible versions
- Various process connections
- Operational check via optional tester
- Flame-proof variants available

Applications:
- Liquids with minimum 0.7 kg/dm3 density
- Fail-safe and control level switches in closed tanks
- Ballast tanks on ships
- Chemical industry
- Food and beverage
- Power plants
- Oil industry
- Water industry

Specifications
- Ambient temperature: –20~80°C
- Process temperature: –40~250°C
- Process pressure: up to 25 bar
- Output: 250Vac, 10A NO/NC
- Process connection: flanges or 2" thread
- Ingress protection: IP65, IP68

Code	Specifications
MKA-210-0	Fixed differential level switch. Side/Top Mount, square flange. 202mm protrusion length
MKA-21B-0	Fixed differential level switch. Side/Top Mount with 2"BSP connection. 189mm protrusion length
MKG-210-0	Fixed differential level switch. Side/Top Mount, square flange, 202mm protrusion length, with Rubber Protection Sleeve (Medium 0~100°C)
MKS-210-0	Fixed differential level switch. Side/Top Mount, square flange, 202mm protrusion length, with Silicone Protection Sleeve (Medium 0~200°C)
MKA-210-4	Fixed differential level switch. Side/Top Mount, square flange, with "L" or "Z" profile
MKA-220-0	Adjustable differential level switch. side mount, square flange. 254mm protrusion length
MKA-230-1	Adjustable differential level switch. Top Mount. 1265 mm protrusion length / 1000mm Arm length

Accessories

Code	Specifications
MMK-110	Steel Test Plunger
MMK-120	Stainless Steel Test Plunger
MFF-110	Steel Counter Flange
MFF-111	Steel Counter Flange – for units with MMK-110 Tester
MFF-120	Stainless Steel Counter Flange
MFF-121	Stainless Steel Counter Flange – for units with MMK-120 Tester
MKA-210-FLOAT	Spare float for MKA-210-0, 64mm diameter
MKA-21B-FLOAT	Spare float for MKA-21B-0, 52mm diameter

MKA-220-0
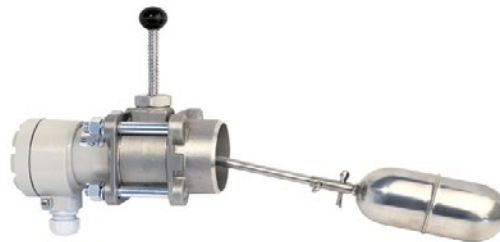
MKA-210-0 + MMK-110 + MFF-111

MFF-110

MAGNETIC TRACKING

NIVOPOINT

Magnetic Tracking Level Switches

Applications:
- Multipoint level switching
- For controlling pumps, valves
- Level detection of aggressive liquids
- Level switching of explosive liquids

Specifications
- Insertion length: 0.25~3m
- Material of wetted parts: 1.4404 float / 1.4571
- Max. process pressure: 2.5 MPa (25 bar)
- Min. medium density: 0.55 / 0.8 kg/dm3
- Medium temperature: -40~150°C
- Ambient temperature: -40~95°C
- Output: 1~5 pcs reed-switches, one connecting point of each is common, NO/NC
- Switching rate: 120W/VA, 250Vac/dc, 3 A reed relay, summary max. 9 A
- Switching differential: <10mm
- Distance between reed-switches: minimum 110mm
- Electrical connection: M20 x 1.5 cable gland, cable outer diameter: 6~12mm terminal, 0.5~2.5mm wire cross section
- Ingress protection: IP67
- Dimension of the housing: 116 x 80 x 65mm

MRC-104-3

Code	Specifications
MRC-104-3	Magnetic Tracking Level Switch, 1 Switch, 400mm Probe Length, 2"BSP
MRC-203-3	Magnetic Tracking Level Switch, 2 Switches, 300mm Probe Length, 2"BSP
MRC-204-3	Magnetic Tracking Level Switch, 2 Switches, 400mm Probe Length, 2"BSP

OPTICAL

SD20

Optical Level Switches

Economic, reliable level control for food products, grease/oil, waste water, liquor and hydraulics.

Specifications
- Housing material: PC / PES (polyethersulfone)
- Supply voltage: 10~28Vdc
- Load current: <=100 mA
- Current consumption <15 mA
- Output mode: NPN/PNP
- Output function: NO/NC
- Electrical protection: reverse polarity protection, short circuit protection
- Ambient temperature: -10~80°C
- Operation temperature: -10~125°C
- Pressure: Max 10 bar
- IP rating: IP67
- Indicator light: Red LED
- Cable specifications: PVC, 24 AWG, L=2 m, 3C (blue, green, black, and brown)
- Connection size: 3/8""BSP

Code	Specifications
SD20GARN1	Optical Level Switch, NPN Open collector, N/O
SD20GARN0	Optical Level Switch, NPN Open collector, N/C
SD20GARP1	Optical Level Switch, PNP Open collector, N/O
SD20GARP0	Optical Level Switch, PNP Open collector, N/C

FLOW

Flow Meters

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Flow Switches

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Flow Instrumentation

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For the latest information & pricing check
www.intech.co.nz

INSERTION PADDLE FLOW METERS

IF500 / IF600

TRIMEC
FLOW PRODUCTS

Insertion Paddle Wheel Flow Transducers

IF500 Size: 1.5" to 36" pipes (40mm~900mm) Stainless steel insertion flow meter with two independent pulse outputs

IF600 Size: 2" to 100" pipes (50mm~2500mm) Stainless steel insertion flow meter, suitable for hot tap installations

IF500

IF600

TYPE	IF500	IF600
Suit Pipe Sizes	40~900mm (1.5~36")	50~2500mm (2~100")
Pipe Connection	1.5"BSP or NPT	2"BSP or NPT
Flow Range	0.25~6300 litres/sec	0.4~49000 litres/sec
Flow Velocity Range	0.3~10 metres/sec	
Linearity	Typically +/- 1.5% with well established flow profile	
Temperature Range	-40~100°C / 200°C max	
Maximum Pressure	80 bar	
Materials	316SS body & rotor shaft, PVDF rotor	

Code	Specifications
IF500S215-11C	Flow Meter 40~900mm, PVDF Rotor, 100°C, 1.5"BSPT, NPN/Voltage pulse with Flying cable (1.5m)
IF500S215-13C	Flow Meter 40~900mm, PVDF Rotor, 100°C, 1.5"BSPT, Reed Switch only with Flying cable (1.5m)
IF600S215-11C	Flow Meter 50~2500mm, PVDF Rotor, 100°C, 1.5"BSPT, NPN/Voltage pulse with Flying cable (1.5m)
IF600S215-13C	Flow Meter 50~2500mm, PVDF Rotor, 100°C, 1.5"BSPT, Reed Switch only with Flying cable (1.5m)

Note: Peek rotor available for higher temperature and harsher liquids. Other options available on application.

OVAL GEAR FLOW METERS

TF Series

Oval Gear Mechanical Flow Meters

The TF Series Oval Gear PD flowmeters offer a high level of accuracy turndown & repeatability. These precision flowmeters are used for flow rate measurement in flow monitoring and control applications and for totalising in dispensing and batching. Oval Pulse flowmeters are suitable for use with a wide range of clean liquids including viscous lubricants, chemicals, food bases and non-conductive low viscosity solvents either pumped or gravity fed.

Features

- High accuracy & repeatability, direct reading flowmeter
- No requirement for flow conditioning (straight pipe runs etc.)
- Simple to install, easy to service (low number of parts)
- Stainless steel or aluminium models
- Measures high & low viscosity liquids
- Measures conductive & non-conductive clean liquids
- Available with a variety of outputs and functions
- Intrinsically safe & explosion proof models available
- Quadrature pulse output option & bi-directional flow

Specifications

- Operating temperature: -20~120°C
- Repeatability: typically ±0.03%
- Protection: IP66/67 (NEMA4X) optional Exd IIB T6 or I.S.
- Reed switch output: 30Vdc x 200mA max.
- Hall effect output: 3 wire open collector, 5~24Vdc max., 20mA max.
- Control outputs: two 1A NPN open collectors, 24Vdc max / two SPDT 5A relays (with ac & DIN powered versions) when coupled with RT14 or RT40.
- Electrical connection: M20 x 1.5mm or ½" NPT female threaded

TF008

TF025

TF050

Code	Specifications
TF006A001-211	Oval gear Flow Meter, 2~100L/hr, 6mm, 1/4"BSP, Aluminium Body, M20 cable entry
TF006S001-211	Oval gear Flow Meter, 2~100L/hr, 6mm, 1/4"BSP, 316LSS Body, M20 cable entry
TF008A001-211	Oval gear Flow Meter, 15~550L/hr, 8mm, 3/8"BSP, Aluminium Body, M20 cable entry
TF008S001-811	Oval gear Flow Meter, 15~550L/hr, 8mm, 3/8"BSP, 316LSS Body, M20 cable entry
TF015A001-211	Oval gear Flow Meter, 1 - 40 L/min, 15mm, 1/2"BSP, Aluminium Body, M20 cable entry
TF025A001-211	Oval gear Flow Meter, 10~150L/min, 25mm, 1"BSP, Aluminium Body, M20 cable entry
TF025S001-211	Oval gear Flow Meter, 10~150L/min, 25mm, 1"BSP, 316LSS Body, M20 cable entry
TF050A001-211	Oval gear Flow Meter, 30~4750L/min, 50mm, 2"BSP, Aluminium Body, M20 cable entry

Note: Other models are available on request. Flow displays also available; integral or remote of meter.

POSITIVE DISPLACEMENT FLOW METERS

MP Series

TRIMEC
FLOW PRODUCTS

Multi Pulse Rotary Piston Meters

Positive displacement flowmeter with two independent pulse output signals which are linearly proportional to volumetric flow rate.

MP015

MP025

MP040

MP050

TYPE	MP015	MP025	MP040	MP050
Nominal size mm (")	15mm (1/2")	25mm (1")	40mm (1.5")	50mm (2")
Flow range (litres/min)	0.2~10	2~50	4~140	12~330
Accuracy @ 3cp	* ± 1% o.r.	±0.5% of reading		
Improved accuracy		± 0.2% of rate with optional NL correction		
Repeatability		Typically ± 0.03%		
Temperature range		-40~200°C		
Max pressure Aluminium	30 bar	60 bar	30 bar	20 bar
Max pressure 316LSS	100 bar	60 bar	60 bar	30 bar
Max press High press 316SS	350 bar	150 bar	150 bar	-
Protection class		IP66/67 (NEMA4X), optional Exd IIB T4 / T6 or I.S		
Output resolution (pulses/litre) - Reed switch	200	20	7.3	2.5
Output resolution (pulses/litre) - Hall effect	400	100	44	20
Reed switch output		30Vdc x 200mA max		
Hall effect output (NPN)		3 wire open collector, 5~24Vdc, 200mA max.		

Code	Specifications
MP015A-321-211	Multipulse Flow Meter 0.2~10L/min, 15mm, Aluminium Body
MP015S-321-211	Multipulse Flow Meter 0.2~10L/min, 15mm, 316SS Body
MP015H-321-211	Multipulse Flow Meter 0.2~10L/min, 15mm, High Pressure 316SS Body
MP025A-321-211	Multipulse Flow Meter 2~50L/min, 25mm, Aluminium Body
MP025S-321-211	Multipulse Flow Meter 2~50L/min, 25mm, 316SS Body
MP025H-321-211	Multipulse Flow Meter 2~50L/min, 25mm, High Pressure 316 SS Body
MP040A-321-211	Multipulse Flow Meter 4~140L/min, 40mm, Aluminium Body
MP040S-321-211	Multipulse Flow Meter 4~140L/min, 40mm, 316SS Body
MP040H-321-211	Multipulse Flow Meter 4~140L/min, 40mm, High Pressure 316 SS Body
MP050A-321-211	Multipulse Flow Meter 12~330L/min, 50mm, Aluminium Body
MP050S-321-211	Multipulse Flow Meter 12~330L/min, 50mm, 316SS Body

Note: Other models are available on request. Flow displays also available; integral or remote of meter.

TURBINE FLOW METERS

PT Series

Turbine Flow Meters

Turbine flowmeters are precise, reliable and rugged units for the volumetric flow measurement of clean low viscosity liquids in the petrochemical, pharmaceutical, food processing and general industrial applications.

PT Turbopulse turbine flowmeter series measure flows of low viscosity liquids from 27 to 4500 litres/min in a range of sizes from 1" to 4" (25~100mm).

Features

- Materials: Body: 304SS, (316SS optional)
    Bearings: Tungsten carbide sleeve
- Temperature: -50~150°C (-50~240°C optional)
- Pressure: 250 bar max for threaded units. Flanged units to ruling
- Pressure drop: Approx 0.28 bar at max flow. (SG=1, viscosity=1 cSt)
- Linearity: ±0.5% over 10:1 turndown
- Viscosity: 10 cSt recommended maximum to maintain linear range
- Output: Pulse. Reluctance type pick-off coil. Second pick-off optional
    (20mV P/P min), max 50m transmission

Code	Specifications
PT025-S1T1-111	Turbine Flow Meter, 1.6~16 m3/hr, 1"BSP, 25mm, 316SS Body
PT040-S1T1-111	Turbine Flow Meter, 3.4~34 m3/hr, 1.5"BSP, 40mm, 316SS Body
PT050-S1T1-111	Turbine Flow Meter, 6.8~68 m3/hr, 2"BSP, 50mm, 316SS Body

Note: Other models are available on request. Flow displays also available; integral or remote of meter.

IN LINE FLOW SWITCHES

1100

THOMAS PRODUCTS LTD.

In Line Flow Switch - Fixed set point

Features
- Housing: Bronze
- Shuttle: Teflon
- Spring: 316 SST
- O Ring: Viton A
- Reed Switch: 20 Watt SPDT
- Wire: 18 AWG 24" Lg. Polymeric
- Size: 3/4"NPT
- Temperature: -28~150°C
- Pressure: 27 bar at 38°C max / 82 bar at 38°C burst strength

Code	Specifications
1100-18100	Liquid Flow Switch Bronze 1.89 l/m SPDT
1100-18101	Liquid Flow Switch Bronze 3.78 l/m SPDT
1100-18102	Liquid Flow Switch Bronze 7.56 l/m SPDT
1100-18103	Liquid Flow Switch Bronze 11.3 l/m SPDT
1100-18104	Liquid Flow Switch Bronze 15.1 l/m SPDT
1100-18105	Liquid Flow Switch Bronze 18.9 l/m SPDT
1100-18106	Liquid Flow Switch Bronze 22.7 l/m SPDT
1100-18107	Liquid Flow Switch Bronze 30.3 l/m SPDT

1200

THOMAS PRODUCTS LTD.

In Line Flow Switch - Adjustable set point

Features
- Housing: Bronze
- Shuttle: Teflon
- Spring: 316SS
- O Ring: Viton A
- Reed Switch: 20 Watt SPDT
- Wire: 18 AWG 24" Lg. Polymeric
- Size: 1" NPT
- Temperature: -28°C~150°C
- Pressure: 27 bar at 38°C max / 82 bar at 38°C burst strength

Code	Specifications
1200-18271	Liquid Flow Switch Bronze 2.83~22.7 l/m
1200-18272	Liquid Flow Switch Bronze 7.57~30.3 l/m
1200-18273	Liquid Flow Switch Bronze 18.9~56.7 l/m

![THOMAS PRODUCTS LTD.]

In Line Flow Switch - Fixed set point

Features

- Housing: Brass
- Piston: Brass
- Spring: 316SS
- Reed Switch: 50 Watt SPST N/O
- Wire: 18 AWG 24" Lg. Polymeric
- Size: 1/2" NPT
- Temperature: -28~107°C
- Pressure: 103 bar max

Code	Specifications
2000-12666	Liquid Flow Switch Brass 1.89 l/m NO
2000-12667	Liquid Flow Switch Brass 3.78 l/m NO
2000-12668	Liquid Flow Switch Brass 5.67 l/m NO
2000-12669	Liquid Flow Switch Brass 7.57 l/m NO
2000-12670	Liquid Flow Switch Brass 9.46 l/m NO
2000-12671	Liquid Flow Switch Brass 11.3 l/m NO

2100

![THOMAS PRODUCTS LTD.]

In Line Flow Switch

Features

- Housing: Polysulfone
- Piston: Polysulfone
- Spring: 316SS
- Reed Switch: 50 Watt SPST N/O
- Wire: 18 AWG 24" Lg. Polymeric
- Size: 1/2" NPT
- Temperature: -28~107°C
- Pressure: 17 bar at 20°C max. / 103 bar at 20°C burst strenght

Code	Specifications
2100-12686	Liquid Flow Switch PSU 0.37 l/m
2100-12687	Liquid Flow Switch PSU 0.94 l/m
2100-12688	Liquid Flow Switch PSU 1.89 l/m
2100-12689	Liquid Flow Switch PSU 2.83 l/m
2100-12690	Liquid Flow Switch PSU 3.78 l/m
2100-12691	Liquid Flow Switch PSU 5.67 l/m

Adapter fittings for the 2100

Code	Specifications
2100-12720	Adapter for 2100 – 1/8" NPT
2100-12721	Adapter for 2100 – 1/4" NPT
2100-12722	Adapter for 2100 – 1/2" Barbed, for 1/2" ID hose

THERMAL DISPERSION FLOW SWITCHES

SPX2 Series

Thermal Dispersion Flow Switches

Features:

- Thermal dispersion flow switches are incredibly sensitive and provide higher accuracy than traditional mechanical switches.
- Installation is simple and convenient in any environment, with customizable pipe diameter and adjustable sensor rod length adapted to different conditions.
- Highly durable, with its ability to withstand even liquids containing impurities, so you can rest assured of reliable performance over time.
- Choose from three signal output methods to best fit your needs.
- Multi-segment display featuring 10 LEDs provides an accurate and precise reading of liquid flow rate.
- Control settings are made easier with buttons replacing knobs.
- Easy-to-program digital interface can be quickly set using the buttons.

Industry:

- Hydroelectric power
- Machines
- Refrigerating and airconditioning
- Electronics
- Iron and steel
- Chemical
- Food
- Pharmaceutical, etc.
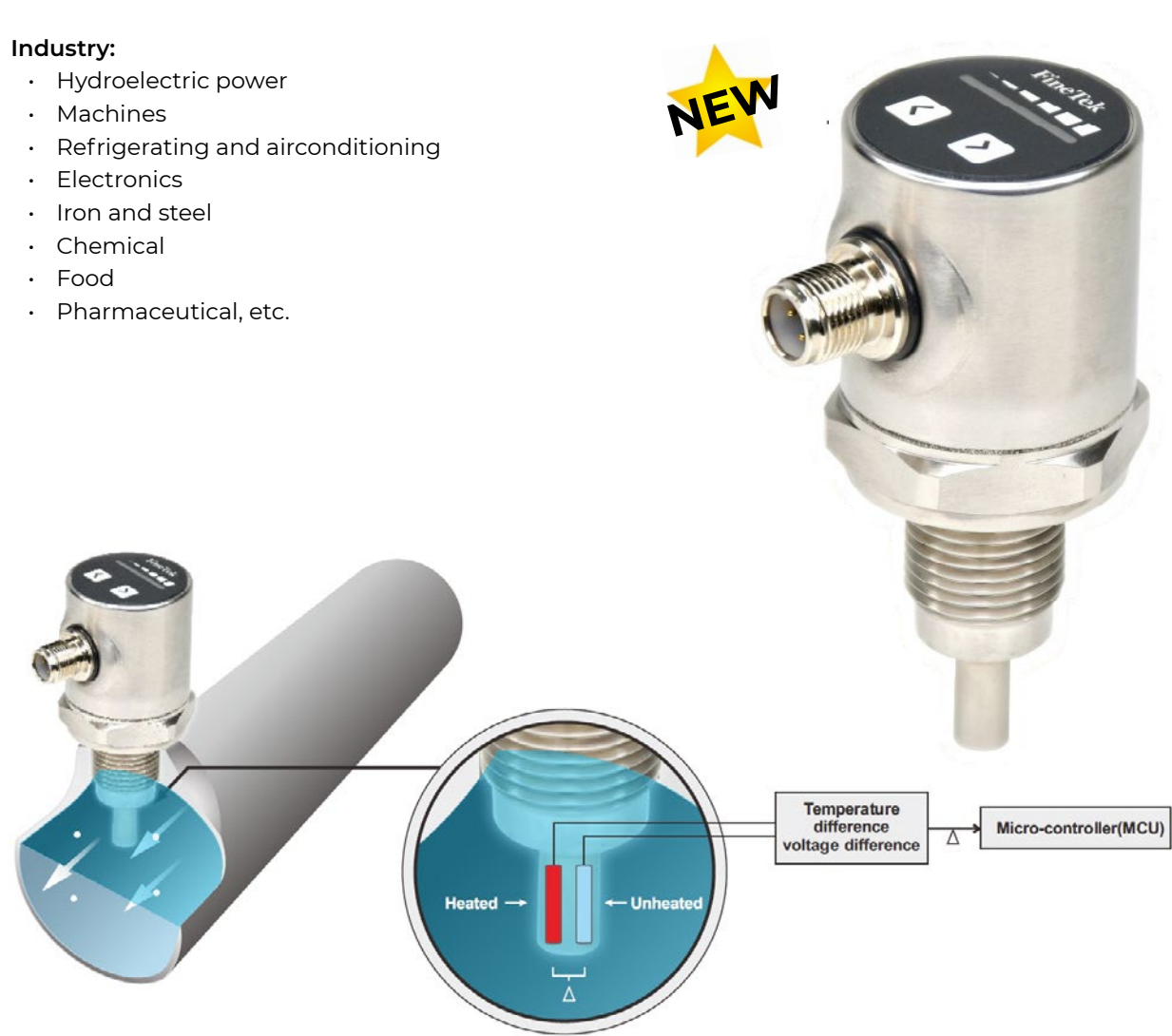
Code	Specifications
SPX2	SPX Thermal Dispersion Flow Switch (Digital Type) Cylindrical Probe ø38mm, 1/2"PF, SUS304, 31.5mm, Relay Output (NO).

PADDLE TYPE FLOW SWITCHES

SF1800

FineTek

Paddle Type Flow Switch

Features
- Vertically mounted flow switch
- Temperature: -30~150°C
- Pressure: 24 bar (355 psi g)
- Switch: 60W/230Vac. SPDT
- Mounting: 1"BSP
- Housing: IP65. Aluminium
- Paddle: 304SS / Other wetted parts: teflon

Code	Specifications
SF1800	Paddle Flow Switch - Vertical Mounted

2400

THOMAS PRODUCTS LTD.

Adjustable Paddle Type Flow Switches

- Housing: Brass (Model 19650) / 316SS (Model 19651)
- Paddle: 316SS
- Shuttle: 316SS
- Spring: 316SS
- Reed Switch: 20 Watt SPDT20 Watt SPDT
- Wire: 18 AWG 24" Lg. Polymeric
- Temperature: -34~150°C
- Pressure: 58 bar max
- Mounting: 1"NPT
- Repeatability: ±5%

Code	Specifications
2400-19650	Liquid Flow Switch Brass
2400-19651	Liquid Flow Switch Stainless Steel

2500

THOMAS PRODUCTS LTD.

Adjustable Paddle Type Flow Switches

- Housing: Polysulfone
- Paddle: Polysulfone
- Shuttle: Polysulfone
- Spring: 316SS
- Reed Switch: 20 Watt SPDT20 Watt SPDT
- Wire: 18 AWG 24" Lg. Polymeric
- Temperature: -28~107°C
- Pressure: 10 bar max
- Mounting: 1"NPT
- Repeatability: ±5%

Code	Specifications
2500-19652	Liquid Flow Switch Polysulfone

FLOW RATE DISPLAYS & TOTALISERS

102D

Battery Powered Rate Totaliser

The 102D Battery Powered Rate Totaliser is designed to operate with virtually any pulse/frequency generating flowmeters including Turbine, Positive Displacement, Electromagnetic and Coriolis. The unit is powered entirely from the internal replaceable batteries.

Features
- Linearised Input
- Fully Programmable
- Displays Rate, Total and Accumulated Total
- Powered by Long-life Replaceable Batteries
- Panel, Wall and Pipe Mounting
- Watertight to IP67 (Nema 4X)
- CE Compliant

Code	Specifications
102D.2	Rate Totaliser – Wall mounting

IN-RT

Flow Rate Indicator With Totaliser

Features
- 6 Digit LED Display
- Inputs: 0~30V, magnetic pickup, NPN, PNP, TTL, Namur
- 4 Set Points with delay
- Analogue Output Retransmission option
- Serial RS485/RS232 port option with Modbus RTU
- Simple setup and calibration
- On Screen Step by Step Instructions
- 5 Buttons for easy Operator Interface
- Wide Range of Power Supply options from 10V to 265V

Code	Specifications
IN-RT	Flow Rate Indicator + Totaliser; 85~265Vac / 95~370Vdc Power supply
Options	
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA and 0~10V
L	Low voltage power supply: 15~48Vac / 10~72Vdc

RT14

Trimec FLOW PRODUCTS

Flow Rate Totaliser

The RT14 Rate Totaliser is the perfect display for users who require a more sophisticated local display which can also interface with external control or monitoring equipment (PLC, SCADA, DCS).

Features

- Self or external powered, 8 digit LCD total, accumulated total and rate
- Robust IP66/67-NEMA4X universal mount glass reinforced nylon enclosure with rubberized buttons and polycarbonate lens
- Glass Reinforced Nylon & panel mountable housing
- Sealed pulse, 4-20mA (Loop Powered) output, multi point linearization of flow input or frequency inputs
- Flow alarm for high/low indication
- PIN protected programming
- Simple flow chart touch key programming
- Non volatile memory, Long battery life
- Flowmeter and pipe mount kits available
- Reverse polarity protection

Code	Specifications
RT141D0FM	Flow Rate Totaliser, M20 x1.5mm, Digital Input Type, Universal Mount (Field or Panel) - GRN Housing
RT141D0MM	Flow Rate Totaliser, M20 x1.5mm, Digital Input Type, Integral Meter Mount - GRN Housing

RT40

Trimec FLOW PRODUCTS

Flow Rate Totaliser

Features

- Economic and robust LCD display suitable for mine sites and service truck installations
- Large backlit** LCD screen displaying 5-digit flow rate, 6-digit resettable total, and 8-digit cumulative total
- Battery or externally powered; battery lifespan is 3 years, approximately**
- Robust IP65 (NEMA 4) Aluminium housing capable of being field or panel mounted
- Scaled pulse output**
- Universal inputs
- Reverse polarity protection
- Flowmeter and pipe mount kits available
- PIN protected programming with simple programming flowchart

**External power required for backlight or pulse output features.

Code	Specifications
RT401D0FA	Flow Rate Totaliser with backlit large digit LCD – Aluminium Alloy Housing
RT406D0FM	Flow Rate Totaliser with backlit large digit LCD – GNR Housing

BATCH CONTROLLERS

114D

Batch Controller

The Model 114D Batch Controller is designed for flow applications where the precise control of batch quantities is required. Batch Total, Accumulated Total and Pre-set values can all be displayed on the large LCD display.

Features

- Displays Batch Total, Accumulated Total and Preset
- One or two stage valve control
- Watertight to IP67 (Nema 4X)
- Wall or Pipe, Panel mounting
- Fully programmable
- CE Compliant
- Input signal: Frequency
- Accuracy: 0.05%
- Rating: IP67
- Power Supply: 9~28Vdc
- Cable holes in Enclosure: 3
- Alarms (Open Collector): Two Stage Batch

Code	Specifications
114D	Batch controller, DC Powered and Wall mounting

430D

Batch Controller

The 430D Batch Controller is suited to applications where precise measurement and control of variable batch quantities is required.

Features

- Accepts pulse and frequency flow signals
- Scaled pulse output
- Overrun compensation
- One or two stage valve control
- Optional RS232/422/485 interfaces for computers and printers
- Remote start/stop
- No-signal alarm
- Ticket printing with time and date
- Displays batch total, preset quantity, flow rate and accumulated total

Code	Specifications
430D-1-0-E	Batch controller, Pulse or frequency input with signal conditioner, Panel Mount, 220~240Vac

IN-RTB

Flow Rate and Batching Controller

Features
- Dual 6 digit LED displays
- View flow rate & total simultaneously
- Inputs: 0~30V, magnetic pickup, NPN, PNP, TTL, Namur
- 4 set points with delay
- Analogue output retransmission option
- Serial RS485/RS232 port option with Modbus RTU
- Simple setup and calibration
- On screen step by step instructions
- 5 buttons for easy operator interface
- Wide range of power supply options from 10V to 265V

Code	Specifications
IN-RTB	Flow Rate and Batching Controller; 85~265Vac / 95~370Vdc Power supply
Options	
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA and 0~10V
L	Low voltage power supply: 15~48Vac / 10~72Vdc

FLOW PULSE AMPLIFIER

TW-FFA

Flow Pulse Amplifier

Features
- High input sensitivity
- Compact DIN rail mount
- AC mV or Vdc frequency input
- Cost effective
- Easy to install
- Reverse polarity protection
-

Specifications
- Power supply: 5~32Vdc.
- Input: Flow meter impeller or mV: ac or dc frequency.
- Output: Square wave, 200mA @ 24Vdc. 10kHz max.

Code	Specifications
TW-FFA	Flow Pulse Amplifier

FLOW DATA LOGGERS

pH & CONDUCTIVITY

pH

page 90

Conductivity

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For the latest information & pricing check
www.intech.co.nz

pH PROBES

201030

JUMO

Jumo pH Probes

Features
- High-quality zirconium dioxide diaphragm; glass fiber diaphragm for plastic shaft
- Cartridge-style conductive system with reference electrolyte (free from silver ions)
- pH range: 0~12pH, briefly up to 14pH
- Temperature range: -5~80°C
- Optional salt reservoir for extending the operational life in low-conductivity media

201030/60-15	201030/76-18	201030/53-18
Insertion electrode with silicone handle	Glass combination electrode with silicone handle	Plastic shaft electrode with silicone handle
Insertion tip: 6mm diameter	Spherical membrane	Spherical membrane with protection basket
Two ceramic diaphragms	Ceramic diaphragm	Glass fibre diaphragm
KCl reference electrolyte (free from Ag ions)		
1m attached cable and BNC plug		S7 Plug connection

Code	Specifications
201030/60-15	pH Probe Insertion (Meat) 120mm, 1m Cable/BNC
201030/76-18	pH Probe Glass (Lab) 120mm, 1m Cable/BNC
201030/53-18	pH Probe Plastic UWglass, 120mm S7 Plug
Accessories	
202990	Coaxial cable for pH electrodes (1.5m, 5m or 10m length – specify)

M-10

pH and ORP Sensor

General purpose 1/2" NPT pH and ORP sensor

Features
- Temperature: -5~80°C
- Pressure: 0~100 psi
- Cable length: 4.6 metres
- Ref. cell: Single junction, KCl/AgCl
- Ref. junction: Porous teflon
- Applications: Non toxic solutions e.g. Potable water, cooling towers, fresh/salt water, aquariums.

Code	Specifications
M-10	pH Sensor, General purpose ½"NPT, BNC Connector & 4.6m of cable
M-10-ORP	ORP Sensor, General purpose ½"NPT, 4.6m of cable Used for Redox measurement in relatively clean waters

M-11

pH Sensor

General purpose ¾" NPT pH and ORP sensor

Features

- Temperature: 0~80°C
- Pressure: 0~100 psi
- Cable length: 4.6 metres. Option of 10m (Note: 10m is maximum length)
- Ref. cell: Double junction, KNO3 and KCl/AgCl
  High resistance to electrode poisoning solutions
- Applications: For both submersible and insertable use in process and waste water

Code	Specifications
M-11	pH Sensor, General purpose 3/4"NPT, BNC Connector & 4.6m of cable
M-11-PT100	pH Sensor, General purpose 3/4"NPT, 4.6m of cable. Includes a Pt100 sensor.
M-11-PT100-10m	pH Sensor, General purpose 3/4"NPT, 10m of cable. Includes a Pt100 sensor
M-11-PT100-HT	pH Sensor, General purpose 3/4"NPT, 4.6m of cable. High Temperature version (0~110°C) High Pressure (0~150 psi) including a Pt100 sensor

M-12

pH Sensor

General purpose ¾" NPT pH sensor for flowing, viscous applications.

Features

- Temperature: 0~80°C
- Pressure: 0~100 psi
- Cable length: 4.6 metres
- Ref. cell: Double junction, KNO3 and KCl/AgCl
  High resistance to electrode poisoning solutions
  The concave sensor configuration protects the pH bulb from particulate matter and provides a cleansing flow without affecting the line pressure characteristics.
- Applications: Ideal for pipelines with flow velocities greater than 30 cm/sec. Typical applications include batching and process control in the chemical, petro-chemical, pulp/paper and electroplating industries.

Code	Specifications
M-12	pH Sensor, General purpose 3/4"NPT, BNC Connector & 4.6m of cable
M-12-PT100	pH Sensor, General purpose 3/4"NPT pH sensor, 4.6m of cable. Includes a Pt100 sensor
M-12-PT100-HT	pH Sensor, General purpose 3/4"NPT pH sensor, 4.6m of cable. High Temperature version (0~110°C) High Pressure (0~150psi) including a Pt100 sensor

M-21

pH Sensor

General purpose ¾" NPT pH sensor with long insertion length

Features
- Temperature: 0~80°C
- Pressure: 0~100 psi
- Cable length: 4.6 metres
- Ref. cell: Double junction, KNO3 and KCl/AgCl
- High resistance to electrode poisoning solutions, typically those with cyanide, ammonia, sulphide and heavy metals in appreciable concentrations.
- Applications: A combination pH sensor for insertion in tanks and large diameter pipes using process and waste water.

Code	Specifications
M-21	pH sensor, General purpose 3/4"NPT, 4.6m of cable with long insertion length
M-21-PT100	pH sensor, General purpose 3/4"NPT, 4.6m of cable with long insertion length. Includes a Pt100 sensor.
M-21-PT100-HT	pH Sensor, General purpose 3/4"NPT, 4.6m of cable with long insertion length. High Temperature version (0~110°C) High Pressure (0~150psi) including a Pt100 sensor.

PH TRANSMITTERS

ecoTRANS pH03   JUMO

pH Transmitter / Switching device (202723)

Features
- Range: 0~14pH or -1500~1500mV
- Accuracy: ±1% of the measurement range
- 3-way isolation (input, output and voltage supply are electrically isolated from each other)
- Clear 2-line LCD display
- Output: 4~20mA
- Power supply: 20~30Vdc
- DIN rail mount
- Calibration timer
- Option: Dual analogue output with relay

Code	Specifications
202723	ecoTRANS pH 03 Transmitter for pH, ORP, RTD with 1 x Analogue Output
202723-101	ecoTRANS pH 03 Transmitter / Switching for pH, ORP, RTD with 2 x Analogue Outputs and 1 x Relay

LPI-pH

pH Transmitter

Features
- 4~20mA Loop powered
- LCD Display
- 2kV isolation
- 0.1% accuracy
- 40~200mV output test signal
- LED indication of loop current
- IP67 enclosure

Code	Specifications
LPI-pH	Isolating pH Voltage Input to 4~20mA Output Loop Powered Transmitter

pH CONTROLLERS

AQUIS 500 pH

JUMO

pH Transmitter / Controller (202560)

Features
- Graphics display with background lighting
- Simple menu guided 3 point calibration
- Full PID controller functionality
- Basic unit with 1x analogue (4~20mA / 0~10V) output
- High End Model with 2x analogue outputs and 2x changeover 3A, 250Vac relay outputs
- Surface mountable housing
- Power Supply: Standard, 20~30Vac/dc. Optional, 12~24Vdc ±15%
- Protection type: IP67

Code	Specifications
202560-1A	AQUIS 500 pH Transmitter/Controller with 1 x Analogue Output, 20~30Vac/dc
202560-2A-2R	AQUIS 500 pH Transmitter/Controller with 2 x Analogue Outputs, 2 x Relays, 20~30Vac/dc
Accessories	
00456352	PC Interface with Converter USB/TTL

CONDUCTIVITY SENSORS

202922

JUMO

JUMO BlackLine CR-GT/-EC Conductive 2-Electrode Conductivity Sensor

CR-EC

CR-GT

Features

- Compact construction
- Integrated Pt1000 (standard)
- Screw connection G 1/2
- Electrical connection: 5m Fixed Cable
- Fitting length: 40mm (202922/20-0010 & 202922/20-0100)
                         63mm (202922/20-0001)
                         120mm (202922/10-1-84 & 202922/10-1-85)
- Suitable for pure and high purity water applications

Code	Specifications
202922/20-0001	BlackLine CR-EC, K=0.01, Pt1000, SS Electrode, G1/2", 5m cable, 63mm fitting length
202922/20-0010	BlackLine CR-EC, K=0.1, Pt1000, SS Electrode, G1/2", 5m cable, 40mm fitting length
202922/20-0100	BlackLine CR-EC, K=1.0, Pt1000, Titanium Electrode, G1/2", 5m cable, 40mm fitting length
202922/10-1-20	BlackLine CR-GT, K=1.0, Special graphite Electrode, Pg13.5 thread, 5m cable, 120mm fitting length
202922/10-1-83	BlackLine CR-GT, K=1.0, Pt100, Special graphite Electrode, Pg13.5 thread, M12 connector, 120mm fitting length
Accessories	
00458513	Cable with M12 cable Socket, 4 Pole + Screen (for Conductivity Probe).

CONDUCTIVITY TRANSMITTERS

ecoTRANS Lf03

Transmitter / Switching Device for Conductivity or Resistance and Temperature (202732)

Features
- Display units µS/cm, mS/cm, kOhm x cm, MOhm x cm, µohm/cm, mhom/cm
- Two actual value outputs for conductivity and process temperature
- Switching output
- USP switching function according to USP<645>
- Selectable temperature compensation natural water EN 27 888, ASTM D 1125-95, linear
- Three-way disconnection (input, output, and voltage supply are galvanically isolated from each other)
- DIN-rail mounting
- Delivery includes calibration certificate

Code	Specifications
202732	ecoTRANS Lf 03, Transmitter / Switching device for Conductivity or Resistance and Temperature, 2 x Analogue Outputs and 1 x Relay Output
Accessories	
00456352	PC Interface with Converter USB/TTL

AQUIS 500 CR

Transmitter / Controller for Conductivity (202565)
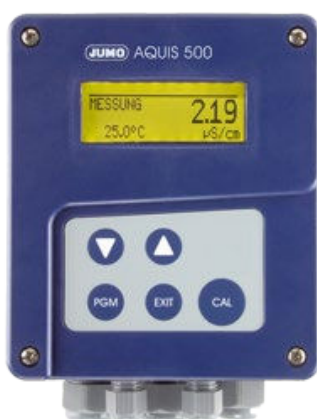
Features
- Automatic temperature compensation
- Large LC graphics display with background lighting
- Choice of display: large numbers, bar graph or trend display
- Calibration options according to measured variable: cell constant and temperature coefficient
- Calibration logbook
- Two-electrode cells (as standard) or four-electrode cells can be connected
- Pollution detection can be activated
- Auto-range operation
- Surface mounting housing (IP67)

Code	Specifications
202565	AQUIS 500 CR, Conductivity Transmitter, IP67, 1 x Analogue output, 20~30Vac/dc
202565-2A-1R	AQUIS 500 CR, Conductivity Transmitter, IP67, 2 x Analogue outputs, 1 x Relay Output, 20~30Vac/dc
Accessories	
00456352	PC Interface with Converter USB/TTL

SIGNAL TRANSMITTERS & CONDITIONERS

2 Wire Transmitters Loop Powered

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3 & 4 Wire Transmitters

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Isolators

page 111

Signal Generators

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Miscellaneous Signal Instrumentation

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For the latest information & pricing check
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UNIVERSAL INPUT

XU2

Universal Input Transmitter (Processor)

- Programmable via USB (requires XU-USB programming key)
- No power supply or calibration required during programming
- 2 wire 4~20mA output, loop powered
- 3750Vac isolation
- High accuracy 0.1%
- Reverse polarity protected
- Heartbeat status LED
- Zero adjust pot
- Offset available via XU Software
- Compact DIN Rail mount enclosure
- Can invert input to: 20mA input / 4mA Output

Input Types:
- Thermocouple B, E, J, K, N, R, S, T
- RTD Pt100 and Pt1000
- For RTD and Thermocouple; Output is Linear with Temperature
- DC: mA, mV and V
- Potentiometer
- 32 point curve fitter for mA, mV, V inputs

Code	Specifications
XU2	Universal Input Transmitter, 2 Wire, USB Programmable
XU-USB	USB Programming cable (Used to set up different ranges)

XJ2 / XJ22

Universal Input Transmitter (Analogue)

XJ2

XJ22
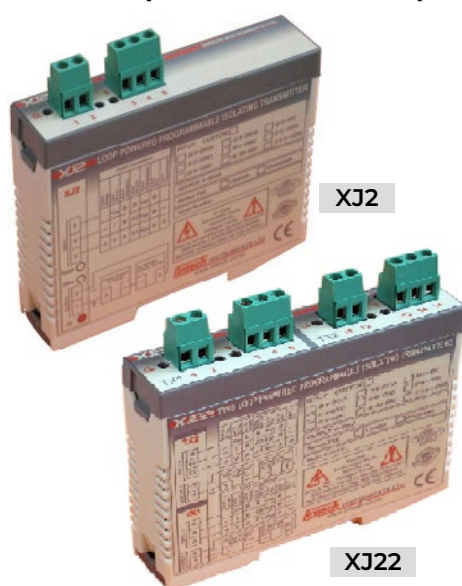
- Field programmable bi-polar input ranges
- 2 wire 4~20mA output(s), loop powered
- 2.0 kV isolation
- 0.1% accuracy
- Reverse polarity protected
- LED indication of loop current
- Compact DIN Rail mount enclosure
- Available standard or special calibration

Input Types:
- DC: mV, V, & mA
- RTD Pt100
- Differential RTD
- Thermocouple (T/C)
- Bridge/Strain Gauge
- Potentiometer
- Resistance

Code	Specifications
XJ2	Single Universal Input Transmitter; One XJ2 Transmitter per enclosure, Standard Calibration units: Inputs 4~20mA
XJ22	Dual Universal Input Transmitter; Two XJ2 Transmitters per enclosure, Standard Calibration units: Inputs 4~20mA

AC CURRENT

LPI-CT-X

AC Current Transmitter

- Field programmable 1Aac or 5Aac
- Mains isolated
- High accuracy
- Reverse polarity protected
- LED indication of loop current
- Compact DIN rail mount enclosure
- 40~200mV output test signal
- Easy to install
- Power supply range 9~33Vdc
- Available with one or two transmitters per enclosure

Code	Specifications
LPI-CT-X1	Single AC Current to DC Isolating Transmitter, Standard 0~5Aac Input Range, 4~20mA Output
LPI-CT-X2	Dual AC Current to DC Isolating Transmitter, Standard 0~5Aac Input Range, 4~20mA Output

Note: Other ranges available on request.

INCCT

AC Current Transmitters

- Split Core Current Transmitters and Switch
- Selectable ranges
- Output: 4~20mA loop powered
- Easy installation

Typical Applications
- Monitoring of fans
- Pump measuring
- And more

Code	Specifications
INCCT-521-SP	AC Current Transmitter, Selectable Ranges: 10A, 20A, 50A
INCCT-2151-SP	AC Current Transmitter, Selectable Ranges: 100A, 150A, 200A
INCCT-521-RMS	AC Current Transmitter, Selectable Ranges: 10A, 20A, 50A, True RMS
INCCT-2151-RMS	AC Current Transmitter, Selectable Ranges: 100A, 150A, 200A, True RMS
INCCS-04K-SW	AC Current Switch, Adjustable: 1.5~200A in 3x ranges, self-powered

BRIDGE / STRAIN GAUGE

LPI-B

2 Wire Bridge Isolated Transmitter

- Field programmable Bi-Polar input ranges
- Isolated input to output 2.0kVDC
- High accuracy
- 40~200mV output test signal
- LED indication of loop current
- Selectable 3 second input damping
- Easy to install
- Compact DIN rail mount enclosure
- Available Standard or Special Calibration
- Reverse Polarity Protection
- Programmable input ranges from 0~1mV to 800mV

Code	Specifications
LPI-B	Bridge to DC Isolating Signal Transmitter, Standard 0~20mV Input, Programmable Input Range Calibration

Note: Other ranges available on request.

DC SIGNAL

LPI-D

DC Transmitter

- Field programmable Bi-Polar input ranges (Model P)
- Isolated input to output 2.0kV
- High accuracy
- 40~200mV output test signal
- LED indication of loop current
- Easy to install
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection
- LPI-D-F: Fixed input ranges available: 4~20mA, 0~20mA, 0~5Vdc, 1~5Vdc, 2~10Vdc, 0~10Vdc.
- LPI-D-P: Field Programmable input ranges from 0~10mV to 150V and from 0~200uA to 100mA.

Code	Specifications
LPI-D-F	DC to DC Isolating Transmitter, Standard 4~20mA Input, Fixed Input Range
LPI-D-F-K	DC to DC Isolating Transmitter, 0~10V Input, Fixed Input Range
LPI-D-P	DC to DC Isolating Transmitter, Standard 4~20mA Input, Programmable Input Range

Note: Other ranges available on request.

FREQUENCY

LPI-F

Frequency Transmitter

- Field programmable input ranges
- Isolated input to output 2.0kV
- Impedance matching on input
- Crystal locked F-V
- Selectable damping
- High accuracy 0.1%
- 40~200mV Output test signal
- LED indication of loop current

- Easy to install
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection

Code	Specifications
LPI-F	Frequency Transmitter, Standard 0~100Hz Input, Programmable

Frequency input

LPI-F

Typical connection for LPI-F

Field transmitter with a self generating pulse output:
E.g. Trimec IF500 flow meter.

Power supply

Controller, Scada input, PLC input.

Power supply

Pulsed input

LPI-F

4~20mA output

Typical connection for LPI-F

Reed switch.
Solid state relay.
Proximity switch, NPN.
Proximity switch, PNP.

Power supply

Controller, Scada input, PLC input.

LIGHT INTENSITY (LUX)

LPN-LUX

Light Intensity Transmitter

The LPN-LUX incorporates an integrated light sensor within an industrial IP66 rated sealed enclosure and is especially designed for high precision linear applications. The sensor has a flat glass window with a built in colour correction filter, giving an approximation to the spectral response in the human eye.

- 2 wire 4~20mA output (loop powered)
- High accuracy
- IP66 enclosure
- Reverse polarity protection
- Special Calibration Ranges available:
  0~100, 0~500, 0~5000, 0~10000lux

Code	Specifications
LPN-LUX	Light Intensity 4~20mA Transmitter, Standard Calibration 0~1000lux Nominal

Note: Other ranges available on request.

POTENTIOMETER

LPI-P

Potentiometer Transmitter

- Field programmable input ranges
- Isolated input to output 2.0kV
- High accuracy
- 40~200mV output test signal
- LED indication of loop current
- Selectable 3 second input damping
- Easy to install
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection
- Programmable input span from 0~10% to 0~100%
- Elevated zero or suppressed span
- Resistance range from 0~1000 ohm to 0~1 Meg ohm

Code	Specifications
LPI-P	Potentiometer to DC Isolating Transmitter, Standard 0~100% Input, Programmable input calibration

Note: Other ranges available on request.

See also the **XU2** and **XJ2 / XJ22** Universal Input Transmitters on page 97 for Potentiometer Input options.

RTD PT100/PT1000

LPN-R

RTD Transmitter

- Field programmable
- RTD Pt100 standard input
- Programmable ranges within -100~600°C
- High accuracy 0.1%
- Linear with temperature
- 40~200mV output test signal
- LED indication of loop current
- Easy to install
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection
- One transmitter per enclosure only

Code	Specifications
LPN-R-X1	Single RTD to DC Non-isolating Transmitter, Pt100 0~100°C Input

Note: Other ranges available on request.

LPI-R

RTD Transmitter

- RTD Pt100 standard input
- Fixed and Programmable ranges within -200~600°C
- Isolated input to output 2.0kV
- Field programmable input ranges (LPI-R-P)
- High accuracy
- Linear with temperature
- 40~200mV output test signal
- LED indication of loop current
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection

Code	Specifications
LPI-R-F	RTD Transmitter, Standard 0~100°C Input, Upscale, Fixed Input
LPI-R-F-29-US	RTD Transmitter, -50~50°C Input, Upscale, Fixed Input
LPI-R-F-15-US	RTD Transmitter, 0~150°C Input, Upscale, Fixed Input
LPI-R-F-16-US	RTD Transmitter, 0~200°C Input, Upscale, Fixed Input
LPI-R-P-11-US	RTD Transmitter, 0~100°C Input, Upscale, Programmable Input

Note: Other ranges available on request.

LPN-R-H

RTD In Head Transmitter

- Field programmable
- RTD Pt100 standard input
- Programmable ranges within -100~600°C
- High accuracy 0.1%
- Linear with temperature
- LED indication of loop current
- Easy to install
- Compact industrial head mount enclosure
- Dual mounting holes for 33mm or 40mm
- Available standard or special calibration
- Reverse polarity protection

Code	Specifications
LPN-R-H-100	In Head Transmitter, Pt100 0~100°C Input, Upscale Break
LPN-R-H-150	In Head Transmitter, Pt100 0~150°C Input, Upscale Break
LPN-R-H-200	In Head Transmitter, Pt100 0~200°C Input, Upscale Break
LPN-R-H-050	In Head Transmitter, Pt100 -50~50°C Input, Upscale Break
Accessories	
00352463	Din Rail Mount Foot

Note: Other ranges available on request.

XU2HN

RTD In Head Non-Isolated Transmitter

- Programmable via USB (requires the XU-USB programming key)
- No power supply or calibration required during programming
- Temperature Input Type: RTD Pt100 and Pt1000
- 2 wire 4~20mA Output, loop powered
- Output is Linear with Temperature
- High Accuracy 0.1%
- Compact Industrial Head Mount Enclosure
- Reverse Polarity Protection
- Offset available via XU Software
- Easy to Install

Code	Specifications
XU2HN	In Head Non-Isolated Transmitter, RTD Pt100 Input, Upscale, 4~20mA Output
Accessories	
XU-Spring-Kit	For vibration areas or where wide ambient temperatures exist on the probe head
XU-USB	USB Programming Key (Used to set up different ranges)

dTRANS T01

JUMO

Temperature Transmitter (707010)

- Designs for B head or DIN-rail mounting
- RTD temperature probes and thermocouples
- Galvanic isolation
- Output 2 wire 4~20 mA, HART® interface
- Customized linearization
- Also available with Ex approval
- Configuration with setup program

Code	Specifications
707016	dTRANS T01 B Ex HART 2 Wire In Head Transmitter with HART® and Ex protection
Accessories	
00352463	Din Rail Mount Foot

THERMOCOUPLE

XU2HI

RTD and Thermocouple In Head Isolated Transmitter

- Programmable via USB (requires the XU-USB programming key)
- No power supply or calibration required during programming
- Temperature Input Types:
    Thermocouple B, E, J, K, N, R, S, T
    RTD Pt100 and Pt1000
- Output is Linear with Temperature
- High Accuracy 0.1%
- Compact industrial head mount enclosure
- Reverse polarity protection
- Offset available via XU Software
- Easy to install

Code	Specifications
XU2HI	In Head Isolated Temperature Transmitter, 2 Wire, RTD and Thermocouple Inputs
Accessories	
XU-USB	USB Programming cable (Use to set up different ranges)

LPI-T

Thermocouple Transmitter

- Fixed and programmable input ranges
- LPI-T-F: Fixed ranges within 0~1200°C Type K
- LPI-T-P: Field Programmable ranges within 0~1200°C Type K (On request)
- Output linear with temperature
- Internal cold junction compensation
- Isolated input to output 2.0kV
- High accuracy
- 40~200mV output test signal
- LED indication of loop current
- Easy to install
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Reverse polarity protection

Code	Specifications
LPI-T-F	Thermocouple Transmitter, Standard Type K 0~1200°C, Upscale, Fixed Input

Note: Other ranges available on request.

UNIVERSAL INPUT

XU4

Universal Input Transmitter (Processor)

- Programmable via USB (requires XU-USB key)
- No power supply or calibration required during programming
- 3750Vac isolation
- High accuracy 0.1%
- Reverse polarity protected
- Heartbeat status LED
- Zero adjust pot
- Offset available via XU Software
- Compact DIN Rail mount enclosure
- Available standard or special calibration
- Universal ac/dc power supply: 20~265Vac and 21~265Vdc
- Input types: mV, V, & mA
                     RTD Pt100 / Pt1000
                     Thermocouple (T/C)
                     Potentiometer
- Output types: Current - e.g. 4~20mA
                     Voltage - e.g. 0~10V

Code	Specifications
XU4	Universal Input Transmitter, 4 Wire, USB Programmable
Accessories	
XU-USB	USB Programming cable (used to set up different ranges)

XJ4

Universal Input Transmitter (Analogue)
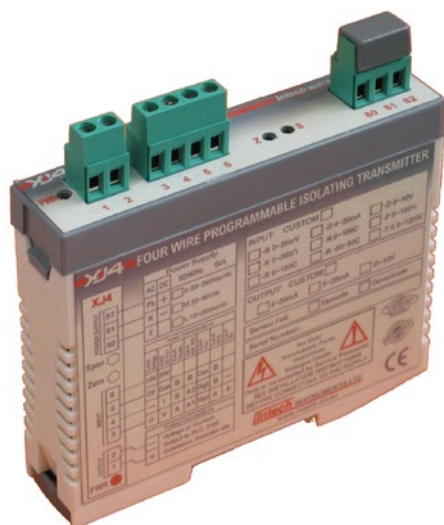
- Field programmable Bi-Polar input output ranges
- Input to output isolation 2.0kV
- High accuracy 0.1%
- Universal AC DC power supply:
            85~264Vac/dc or 22~90Vdc selectable.
            10~28Vac/dc optional
- Transmitter power supply (20Vdc) max 30mA
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Input types: Bridge Strain Gauge
                     DC: mV, V & mA
                     RTD Pt100
                     Differential RTD
                     Thermocouple (T/C)
                     Potentiometer
                     Resistance
- Output Types: Current - e.g. 4~20mA / Voltage - e.g. 0~10V

Code	Specifications
XJ4	Single Universal Input Transmitter, 4 Wire
XJ4-LV	Single Universal Input Transmitter, 4 Wire. Low Voltage Power Supply

BRIDGE / STRAIN GAUGE

PI-B

Programmable Isolating Bridge Transmitter

- Field programmable input and output ranges
- Bi-Polar input and output ranges
- Isolated input to output 1.6kV
- High accuracy 0.1%
- Universal AC/DC power supply
- Selectable 3 second input damping
- High Precision 10Vdc bridge power supply
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Programmable input ranges from 0~1mV to 1000mV
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA
- On board precision 10Vdc 30mA power supply for bridge excitation

Code	Specifications
PI-B	Bridge Transmitter, Input 0~20mV, Output 4~20mA, 85~264Vac/dc Power Supply
PI-B-L	Bridge Transmitter, Input 0~20mV, Output 4~20mA, 10~28Vac/dc Power Supply

Note: Other ranges available on request.

DC SIGNAL

PI-D

Programmable Isolating DC Transmitter

- Field programmable input and output ranges
- Bi-Polar input and output ranges
- Isolated input to output 1.6kV
- High accuracy 0.1%
- Universal AC/DC power supply
- Selectable 3 second input damping
- Transmitter power supply standard
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Programmable input ranges from 0~10mV to 150V, 0~200uA to 50mA
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA
- On board 20Vdc power supply for primary transmitter

Code	Specifications
PI-D	DC Transmitter, 4 Wire, Input 4~20mA, 85~264Vac/dc Power Supply
PI-D-L	DC Transmitter, 4 Wire, Input 4~20mA, 10~28Vac/dc Power Supply

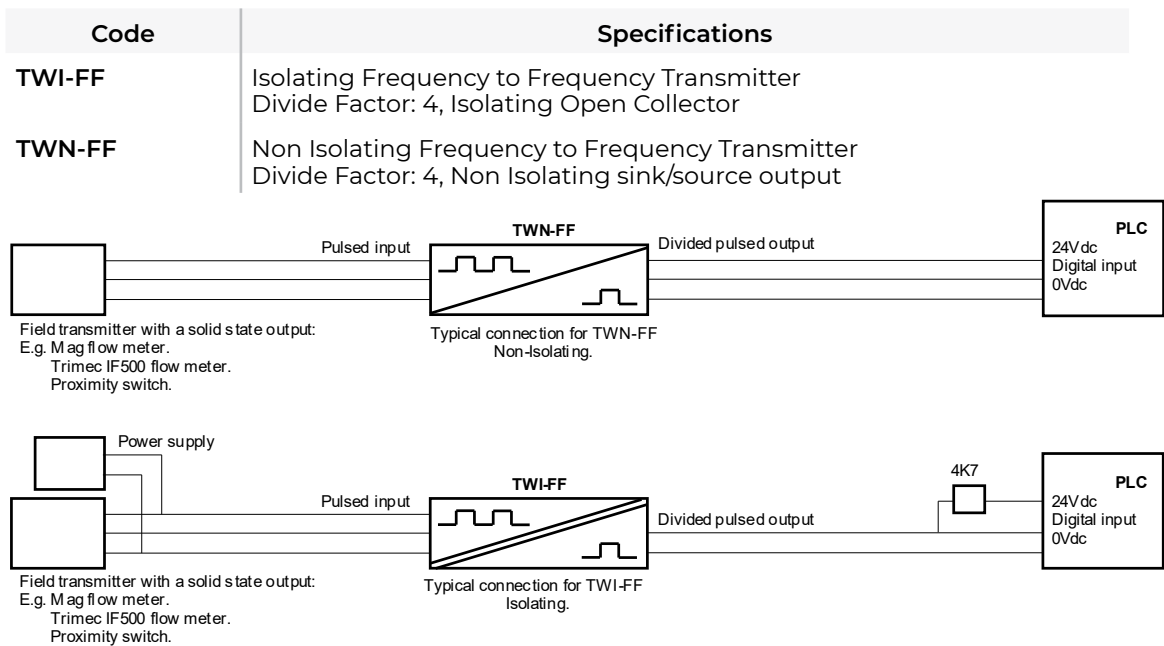**Note**: Other ranges available on request.

DC TO FREQUENCY

TWI-FO / TWN-FO

DC to Frequency Transmitters

- PLC interface
- Converts 4~20mA signal into a frequency for direct conversion into a digital input
- Isolated input to output 1.6kV for TWI-FO
- High accuracy
- LED indication of frequency
- output
- Easy to install
- Compact DIN rail mount enclosure
- Reverse polarity protection
- Externally accessible span and zero adjustments
- Power supply: 11~28Vdc

Code	Specifications
TWI-FO	Isolating DC to Frequency Transmitter Input 4~20mA; Output 10~1010Hz
TWN-FO	Non Isolating DC to Frequency Transmitter Input 4~20mA; Output 10~1010Hz
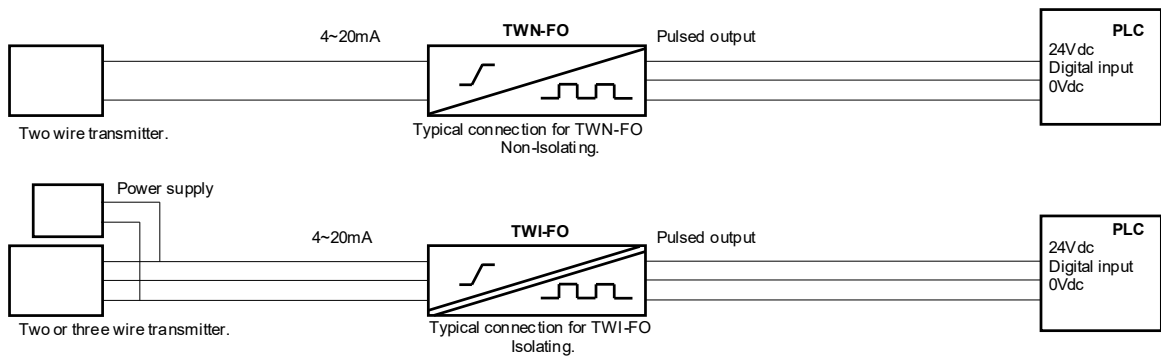
FREQUENCY TO DC

PI-F

Frequency to DC Isolating Signal Transmitter

- Field programmable input and output ranges
- Bi-Polar output ranges
- Fast response time, allowing accurate control
- Impedance matching on input
- Contact closure selection
- Crystal locked period measurement
- Input to output isolation 1.0kV
- High accuracy 0.1%
- Universal AC/DC power supply
- Compact DIN Rail mount enclosure
- Available standard or special calibration
- Programmable input ranges from 0~0.4 Hz to 40 kHz
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA
- On board 12Vdc 50mA power supply for primary signal

Code	Specifications
PI-F	Frequency Transmitter, 4 Wire, Input 0~100Hz, 85~264Vac/dc Power Supply
PI-F-L	Frequency Transmitter, 4 Wire, Input 0~100Hz, 10~28Vdc Power Supply

Note: Other ranges available on request.

FREQUENCY TO FREQUENCY

TWI-FF / TWN-FF

Frequency to Frequency Transmitters

- Frequency I/P divided to a frequency output
- LED indication of frequency output
- Isolated input to output 1.6kV for TWI-FF
- Compact DIN rail mount enclosure
- Reverse polarity protection
- Externally accessible span and zero adjustments

- Power supply: 11~28Vdc.
- Division factor: 2 to 4096 in 12 binary steps. 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2028, 4096
- Input: 5~30Vdc, square wave, (max 100kHz)
- Output: Open collector 30Vdc, 100mA Maximum / Square wave (max 5kHz) / 50:50 mark space ratio

Code	Specifications
TWI-FF	Isolating Frequency to Frequency Transmitter Divide Factor: 4, Isolating Open Collector
TWN-FF	Non Isolating Frequency to Frequency Transmitter Divide Factor: 4, Non Isolating sink/source output

MATHS FUNCTION

PI-M

Programmable Isolating Maths Function Transmitter

- Field programmable input and output ranges
- 32 Predefined math functions
- 12 Bit resolution (0.025%)
- Isolated input to output 1.6kV
- High accuracy to 0.1%
- Universal AC/DC power supply
- Compact DIN rail mount enclosure
- 120 Point user definable curve fitting
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA

Code	Specifications
PI-M	Maths Function Transmitter, Standard Calibration: Input 4~20mA, X+Y, Output 4~20mA, High Voltage Power Supply

Note: Other ranges available on request.

POTENTIOMETER

PI-P

Potentiometer to DC Isolating Transmitter

- Field programmable input and output ranges
- Bi-Polar output ranges
- Isolated input to output 1.6kV
- High accuracy 0.1%
- Universal AC/DC power supply
- Selectable 3 second input damping
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Resistance range from 0~200 ohms to 0~1M ohms
- Programmable input span from 0~10% to 0~100%
- Elevated zero or suppressed span available
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA

Code	Specifications
PI-P	Potentiometer Transmitter, 4 Wire, Standard Calibration: Input 0~100%, Output 4~20mA, High Voltage Power Supply

Note: Other ranges available on request.

RESISTANCE

PI-K

Resistance to DC Isolating Transmitter

- Field programmable input and output ranges
- Bi-Polar output ranges
- Isolated input to output 1.6kV
- High accuracy 0.1%
- Universal AC/DC power supply
- Compact DIN Rail mount enclosure
- Available standard or special calibration 20mA
- Programmable input ranges from 0~10 ohms to 20k ohms
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA

Code	Specifications
PI-K	Resistance Transmitter, 4 Wire, Standard Calibration: Input 0~1kΩ Output 4~20mA, High Voltage Power Supply

Note: Other ranges available on request.

RTD PT100/PT1000

PI-R

RTD Pt100 to DC Isolating Transmitter

- Field programmable input and output ranges
- Bi-Polar input and output ranges
- Isolated input to output 1.6kV
- Linear with temperature
- High Aacuracy & linearity 0.1%
- Universal AC/DC power supply
- Compact DIN rail mount enclosure
- Available standard or special calibration
- Programmable ranges within -200~500°C
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA

Code	Specifications
PI-R	RTD Transmitter, 4 Wire, Input 0~100°C, High Voltage Power Supply

Note: Other ranges available on request.

SET POINT ALARM

PI-S

Programmable Isolating Dual Set Point Alarm Unit

- Field programmable input ranges
- Isolated input to output 1.6kV
- High accuracy
- Universal AC/DC power supply
- 0~100% alarm set point range
- Dual relay or SSR drive outputs
- LED indication of relay status
- N.O. N.C. selectable contacts
- 0.2~30sec adjustable delay
- High, low, window & differential selectable alarms
- Programmable input ranges within 0 to 10V and, 0 to 50mA
- Programmable output ranges from 0~500mV to ±12V, 0~1mA to ±20mA

Code	Specifications
PI-S	Set Point Alarm Transmitter, High Voltage Power Supply
PI-S-L	Set Point Alarm Transmitter, 10~28Vac/dc Power Supply

Note: Other ranges available on request.

THERMOCOUPLE

XID-L

Loop Powered Isolators

- Isolating 4~20mA input to 4~20mA output transmitter
- Input to output isolation 2.5KV
- Input resistance 250Ω
- High accuracy 0.03%
- Reverse polarity protected
- Compact DIN rail mount enclosure
- Available with 1, 2 or 4 transmitters per enclosure

Code	Specifications
XID-L1	Loop Powered Isolator - 1 Loop per Enclosure
XID-L2	Loop Powered Isolator - 2 Loops per Enclosure
XID-L4	Loop Powered Isolator - 4 Loops per Enclosure

Typical Hookup
XID-L / XI-L

4~20mA Input
24V dc Power Supply
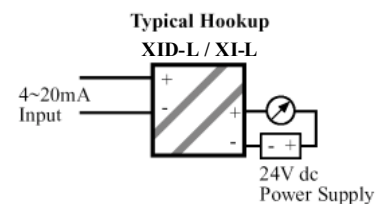
XI-L

Loop Powered Isolators

- Isolating 4~20mA input to 4~20mA output transmitter
- Input to output isolation 1kV
- Input resistance 50Ω
- High accuracy 0.1%
- Reverse polarity protected
- Compact DIN rail mount enclosure
- Available with 1, 2 or 4 transmitters per enclosure

Code	Specifications
XI-L1	Loop Powered Isolator - 1 Unit per Enclosure
XI-L2	Loop Powered Isolator - 2 Units per Enclosure
XI-L4	Loop Powered Isolator - 4 Units per Enclosure

XI-P

Input Powered Isolators

- No power supply needed – input powers transmitter
- Ideal for isolating a typical 4~20mA loop
- Also good for line filtering at the receiving end of line
- Input to output isolation 1kV
- High accuracy
- Reverse polarity protected
- Compact DIN rail mount enclosure
- Available with 1, 2 or 4 transmitters per enclosure

Code	Specifications
XI-P1	Input Powered Isolator - 1 Channel
XI-P2	Input Powered Isolator - 2 Channels
XI-P4	Input Powered Isolator - 4 Channels

Typical Hookup
XI-P

4~20mA Input
4~20mA Output
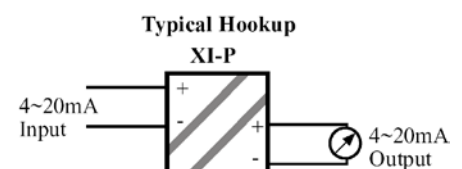
XID-P1

24Vdc Powered Isolator

- Ideal for isolating a typical 4~20mA current loop
- Device power supply powers the output loop
- Input to output isolation 2.5KV
- High accuracy 0.03%
- Reverse polarity protected
- Compact DIN rail mount enclosure
- Easy to install

Code	Specifications
XID-P1	24Vdc Input Powered Isolator - Single Channel

SIGNAL GENERATORS

Mr. Signal

Multi-functional Signal Generator

The Mr. Signal PLC Signal Generator is a versatile instrument for regulating valves & debugging process signals. The Mr Signal can do input and output signals at the same time with high precision and good linearity.

Functions are easy and programmable through the window menu with a graph to show curves and trends. No tool box is complete without it!

MR9270S

MR9270CP

Features:
- Convenient small size
- High precision
- Fast response
- Good linearity
- Colour display signal calibrator
- Simultaneous input and output signals
- HART® Programmability available

Specifications:
- Working temperature: 0°C~50°C
- Overall dimensions: 90 x 70x 28mm
- Weight: 500g
- Power: Built-in lithium battery: 200mA USB or charging and supply
- Battery life: 20mA output can work continuously more than 8 hours

Code	Specifications
MR9270CP	Mr. Signal Multi-functional Signal Generator
MR9270S	Mr. Signal Multi-functional Signal Generator + HART®

IN-GEN

Multi-functional Signal Generator

Features
- Multifunction generator
- Outputs instrument signals
- Use with your own multimeter
- Power supply: 9 volt battery
- 50~150 ohms: Simulates Pt100, (-100~100°C)
  0~20mA: Simulates 0~20mA. Max 320 ohms
  0~100mV: Simulates thermocouple signals
  0~8 volts

Code	Specifications
IN-GEN	Hand Held Signal Generator

MISCELLANEOUS SIGNAL INSTRUMENTATION

LPN-OVP

Over Voltage (Lightning) Protection

Overvoltage protection unit for instrument signals
Used extensively for lightning protection
Two stage protection:
  Gas discharge tubes provide the first stage
  Transient voltage suppressors provide the second stage
Leakage current: 10μA at 24Vdc
Transient cut-off voltage: 33Vdc
Added line resistance: 25 ohms total for the loop (12.5 ohms per side)

Code	Specifications
LPN-OVP	Overload Protection Unit, Standard DIN Rail mount

IN-LF

Line Filter

Designed as an economical and reliable protection against high-voltage transients and surges, and other electrical noise, produced for example by lightning, switching and electrical noise on AC or DC power lines.

- Reactive 230Vac, 3A Maximum Line Filter
- Reliable protection against high-voltage transients and surges
- Output: Max. load 3 amps

Code	Specifications
IN-LF	Line Filter, Input 210~250Vac

POWER CONTROL & INSTRUMENTATION

Instrument Power Supplies

page 115

Power Control

page 116

For the latest information & pricing check
www.intech.co.nz

PSW-2

Adjustable Output Voltage, 200mA Instrument Power Supply

- Output adjustable from 5~30Vdc
- Output current of 200mA
- Low noise
- Precision regulation
- Isolated output floats close to earth potential
- Short circuit tolerant
- High accuracy 0.1%
- Universal AC/DC power supply
- Compact DIN rail mount enclosure
- Special calibrations available

Code	Specifications
PSW-2-10-H	High Voltage Power Supply 100~264Vac/dc, Output Voltage 10Vdc
PSW-2-12-H	High Voltage Power Supply 100~264Vac/dc, Output Voltage 12Vdc
PSW-2-24-H	High Voltage Power Supply 100~264Vac/dc, Output Voltage 24Vdc
PSW-2-24-LV	Low Voltage Power Supply 12~28Vac / 10~30Vdc, Output Voltage 24Vdc

PSW-10

Adjustable Output Voltage, 1A Instrument Power Supply

- Output adjustable from 5~30Vdc
- Output current of 1A
- Low noise
- Precision regulation
- Isolated output floats close to earth potential
- Short circuit tolerant
- High accuracy 0.1%
- Universal AC/DC power supply
- Compact DIN rail mount enclosure
- 12Vdc & 24Vdc output standard. Special calibrations available.

Code	Specifications
PSW-10-12	High Voltage Power Supply 100~264Vac/dc, Output Voltage 12Vdc
PSW-10-24	High Voltage Power Supply 100~264Vac/dc, Output Voltage 24Vdc

PSW-10-F

24Vdc, 1.0A Instrument Power Supply

- Power supply 24Vdc
- Output current of 1.0A
- DC output OK signal
- Mains input 100~264Vac
- LED power on indication
- Short circuit, voltage & current overload protection
- Isolated output floats close to earth potential
- Compact DIN rail mount enclosure
- Cooling by free air convection

Code	Specifications
PSW-10-F	Instrument Power Supply, Output Voltage 24Vdc, 1.0A

SOLID STATE RELAYS
PAC04

SHIMADEN CO., LTD.

Solid State Relay with Radiating Fin

- Radiator integrated ultra small and slim power control SSR
- Single phase: 100~240Vac
- Control input: 4.5~32Vdc
- Current Capacity: 20A / 40A
- Indication: Red LED for 'on'
- Built-in heat sink
- DIN rail mountable

Code	Specifications	Price
PAC04-020-0	Solid State Relay, 20 amp DIN Mount Heat Sink 34mm	$100.00
PAC04-040-0	Solid State Relay, 40 amp DIN Mount Heat Sink 47mm	$178.00

Note: Other ranges available on request.

THYRISTOR POWER CONTROLLERS
PAC18A

SHIMADEN CO., LTD.

Single Phase Thyristor Power Regulator

- PAC18A is a thyristor for smooth, fast switching of power loads of ultimate control
- Easy Front Key Setting
- A 7-segment LED Displays Input and Output Values
- Slow-Up, Slow-Down Function
- Universal Power Supply (100~240V AC)
- Automatic Frequency Discerning Function (50/60Hz)
- Optional Current Detection/Alarm Output Function
- Optional Data Communication Function

Code	Specifications	Price
PAC18AP0-4030-000	Thyristor Power Regulator, 30 amp	$535.00

Note: Other ranges available on request.

> **PAC26** - **Single Phase** and **PAC35** - **Three Phase Power Regulators** are also available by request.

CURRENT SWITCHES
PKK-312

NIVELCO PROCESS CONTROL CO

Multifunctional Current Controlled Switch Modules

- Loop current monitoring relay and digital isolator
- 4~20mA input
- Relay output
- Operating modes: Limit switch, Differential Switch, Window Switch.
- Intrinsically safe Associated Apparatus
- Galvanic isolated limit switch
- Power supply for transmitters
- Cable state monitoring

See also the **INCCS-04K-SW** Split Core Current Switch on page 95.

Code	Specifications	Price
PKK-312-1	Multifunctional Current Controlled Switch, 230Vac	$282.00
PKK-312-4	Multifunctional Current Controlled Switch, 24Vac/dc	$375.00

CONTROLLERS & DISPLAYS

Controllers

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Chart Recorders

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For the latest information & pricing check
www.intech.co.nz

DIGITAL CONTROLLERS

SR90 Series

SHIMADEN CO., LTD.

Digital Controllers

The SR90 series are low cost, high featured controllers. With ±0.3% accuracy and a list of options including selectable input, second control output for Heat cool control, Auto / Manual, RS232/485 Communications, selectable event outputs, analogue retransmission output and 240Vac or 24Vac/dc power supply.

The SR90 series is extremely versatile which makes it suitable for a wide range of applications.

| SR91 | SR92 | SR93 | SR94 |

Features

- Auto tuning controller with PID
- Inputs: Thermocouple, RTD, Current, Voltage
- Outputs: Current, SSR drive, Voltage, Relay
- Standard alarms and event output
- Manual control, SV limit, PV filter, Output limit
- Communicates with MicroScan SCADA and Shimaden Lite software
- Front panel IP66
- Heating and cooling outputs (optional)

Options:

- Heater break alarm
- Control Output 2
- Power supply of 24Vac/Vdc
- Retransmission 4~20mA or 0~10V
- Set value bias by digital input
- Comms: RS232C, RS485; Modbus/Shimaden

Code	Specifications
SR91 Digital Controller, 48 x 48mm	
SR91-8I-90-1N0	Multi input, 4~20mA output, 2 event relays, 100~240Vac
SR91-8Y-90-1N0	Multi input, Contact output (relay), 2 event relays, 100~240Vac
SR91-8Y-08-1N0	Multi input, Contact output (relay), 2 event relays, 24Vac/dc
SR91-8Y-90-140	Multi input, Contact output (relay), 2 event relays, 100~240Vac & Retransmission
SR91-8Y-90-150	Multi Input, Contact output (relay), 2 event relays, 100~240Vac, RS485
SR91-8Y-08-140	Multi input, Contact output (relay), 2 event relays, 24Vac/dc & Retransmission
SR91-8P-90-1N0	Multi input, SSR output, 2 event relays, 100~240Vac
SR91-8V-90-1N0	Multi input, Voltage output, 2 event relays, 100~240Vac
SR91-4I-90-1N0	4~20mA input, 4~20mA output, 2 event relays, 100~240Vac
SR91-4Y-90-1N0	4~20mA input, Contact output (relay), 2 event relays, 100~240Vac
SR91-4Y-08-1N0	4~20mA input, Contact output (relay), 2 event relays, 24Vac/dc
SR91-4V-90-1N0	4~20mA input, Voltage output, 2 event relays, 100~240Vac.
SR92 Digital Controller, 72 x 72mm	
SR92-8Y-N-90-1000	Multi input, Contact output (relay), 2 event relays, 100~240Vac
SR92-8Y-N-08-1000	Multi input, Contact output (relay), 2 event relays, 24Vac/dc
SR92-8V-N-90-1000	Multi input, Voltage output, 2 event relays, 100~240Vac
SR92-8P-N-90-1000	Multi input, SSR output, 2 event relays, 100~240Vac
SR92-8I-N-90-1000	Multi input, 4~20mA output, 2 event relays, 100~240Vac
SR92-8I-N-08-1000	Multi input, 4~20mA output, 2 event relays, 24Vac/dc
SR92-4Y-N-90-1000	4-20mA input, Contact output (relay), 2 event relays, 100~240Vac
SR92-4I-N-90-1000	4~20mA input, 4~20mA output, 2 event relays, 100~240Vac
SR93 Digital Controller, 96 x 96mm	
SR93-8Y-N-90-1000	Multi input, Contact output (relay), 2 event relays, 100~240Vac
SR93-8Y-N-08-1000	Multi input, Contact output (relay), 2 event relays, 24Vac/dc
SR93-8Y-Y-90-1000	Multi input, Contact output (relay), Contact output (2), alarms, 100~240Vac
SR93-8V-N-90-1000	Multi input, Voltage output (relay), 2 event relays, 100~240Vac
SR93-8P-N-90-1000	Multi input, SSR output, 2 event relays, 100~240Vac
SR93-8I-N-90-1000	Multi input, 4~20mA output, 2 event relays, 100~240Vac
SR93-4Y-N-90-1000	4~20mA input, Contact output (relay), 2 event relays, 100~240Vac
SR93-4I-N-90-1000	4~20mA input, 4~20mA output, 2 event relays, 100~240Vac
SR94 Digital Controller, 48 x 96mm	
SR94-8Y-N-90-1000	Multi input, Contact output (relay), 2 event relays, 100~240Vac
SR94-8I-N-90-1000	Multi input, 4~20mA output, 2 event relays, 100~240Vac
SR94-8P-N-90-1000	Multi input, SSR output, 2 event relays, 100~240Vac
SR94-4Y-N-90-1000	4~20mA input, Contact output (relay), 2 event relays, 100~240Vac
SR94-4P-N-90-1000	Current input, SSR output, 2 event relays, 100~240Vac

Digital Controller

- Auto tuning controller with Expert PID control
- Inputs: Thermocouple, RTD, mV
- Outputs: Relay (Reverse / Direct selectable)
- Small instrument depths (62 mm–65 mm) saves space
- Large 13.8 mm bright display
- 1 Pattern, 10 step program function available (option)
- External Control Input as standard (Non voltage contact or open collector)
- Standard alarms and event outputs
- Manual control, SV limit, PV filter, Output limit
- Dimensions: H48 x W48 x D70mm

Code	Specifications
SRS1-Y-N10	Digital Controller, H48 x W48 x D70mm, Universal input, Contact Control Output, 2 Event outputs, 100~240Vac

SR23A

SHIMADEN CO., LTD.

High Accuracy Digital Controller (96 x 96mm)

- 2-channel controller (Basic type: 1-channel controller)
- Independent 2-loop / Internal Cascade / 2-input operation control
- High accuracy ± (0.1% FS + 1 digit)
- High Sampling Cycle 0.1 sec
- High resolution 1/ 1000°C display achieved- Only for R.T.D. input (scale: 0.000~30.000°C)
- Auto-Tuning PID / Expert PID / Self-Tuning PID
- Multi-Setting of 10 Set Values
- Independent Universal-Input
- User Friendly Operation (Menu Driven: 4 Lines LCD Display)
- Easy Setting & Maintenance via Infrared COM port on the front panel
- Interface RS232C/RS485 (MODBUS / Shimaden)
- Front dust/splash-proof IP66
- Universal Power Supply (100~240Vac ±10%)
- Sensor power supply option (24Vdc 25mA)
- DI 10 points/DO 9 points: External BCD Set Value Select

Code	Specifications
SR23A-SSIN-040005A	Single input Controller with Current Control output, 4~20mA input & RS485
SR23A-SSYN-040005A	Single input Controller with Contact Control output, 4~20mA input & RS485
SR23A-SSYN-044010A	Single input Controller with Contact Control output, 4~20mA input, Retransmission 1 and External control DI 10 points/DO 9 points
SR23A-DCII-040010A	Dual input Controller with Cascade Control

BTC-9300

BrainChild

Digital Controller (48 x 48mm)

- High-end process and temperature controller
- Autotuning controller with fuzzy logic + PID processing
- Hi-speed processor: 5 samples per second
- Configurable input: Thermocouple, RTD, Current and Voltage
- Output: mA, mV, SSR drive, Relay
- Remote set point via the separate 4~20mA input
- Timer function and ramp rate function
- High and low alarms. Heating/cooling control
- Power supply: 90~264Vac.Optional 11~26Vdc/ac
- RS485 or 4~20mA retransmission
- 4 digit display
- IP65 front panel
- Built in pressure/pump control algorithm

Code	Specifications
BTC-9300-411110	Digital Controller, Standard input, Relay output, 90~264Vac
BTC-9300-412110	Digital Controller, Standard input, SSR output, 90~264Vac
BTC-9300-413110	Digital Controller, Standard input, mA output, 90~264Vac
BTC-9300-511110	Digital Controller, Standard input, Relay output, 11~26Vac/dc
BTC-9300-511113	Digital Controller, Standard input, Relay output, 11~26Vac/dc + Retrans (mA)

BTC-C21/ BTC-C91

BrainChild

Digital Controllers

BTC-C21

BTC-C91

- Autotuning controller with fuzzy logic + PID processing
- Configurable input: Thermocouple or RTD
- Option for Voltage or mA input
- Outputs: mA, SSR drive, Relay
- Selectable alarm modes
- 1 alarm relay
- Standard Power supply: 90~240Vac, Optional: 11~26Vdc/ac
- Soft start ramp and dwell timer
- 4 digit display
- IP65 front panel C21 / IP30 front panel C91
- RS485 or 4~20mA retransmission

Code	Specifications
BTC-C21-411101	Digital Controller, 48 x 24mm, Standard input, Relay/Alarm, 90~250Vac
BTC-C21-412101	Digital Controller, 48 x 24mm, Standard input, SSR/Alarm, 90~250Vac
BTC-C21-413101	Digital Controller, 48 x 24mm, Standard input, 4~20mA/Alarm, 90~250Vac
BTC-C21-511101	Digital Controller, 48 x 24mm, Standard input, Relay/Alarm, 11~26Vac/dc
BTC-C21-MISC	Digital Controller C21 Miscellaneous
BTC-C91-411101	Digital Controller, 48 x 48mm, Standard input, Relay/Alarm, 90~250Vac
BTC-C91-412101	Digital Controller, 48 x 48mm, Standard input, SSR/Alarm, 90~250Vac
BTC-C91-511101	Digital Controller, 48 x 48mm, Standard input, Relay/Alarm, 11~26Vac/dc
BTC-C91-MISC	Digital Controller C91 Miscellaneous

Digital Controller (96 x 96mm)

- Autotuning controller with fuzzy logic + PID processing
- Hi-speed processor: 10 samples per second
- Configurable input 1: Thermocouple, RTD Pt100, mA, V
- Input 2: mA, V. Remote Set Value possible
- Event Input (DI) standard
- Output 1: mA, V, SSR drive, Relay. (specify when ordering)
- Output 2 option: mA, V, SSR drive, Relay (Heat/Cool control) Remote setting of 4~20mA
- Timer function and ramp rate function
- Two alarms
- RS485 or 4~20mA retransmission
- 4 digit display / IP65 front panel
- Built in pressure/pump control algorithm
- Power Supply: 90~264Vac

Code	Specifications
BTC-4300-4111110	Digital Controller, Standard input, dual Relay/Alarm, 90~264Vac

PROGRAMMABLE DIGITAL CONTROLLERS

FP93

SHIMADEN CO., LTD.

Programmable Ramp Controller (96 x 96mm)

- Autotuning controller with expert PID processing
- Multi Inputs: Thermocouple, RTD, Current, Voltage
- Outputs: Current, SSR drive, Voltage, Relay
- Remote setting: analogue or digital
- Timer functions
- Ramp control, 16 steps per pattern
- Run/RST, Adv, Hld, Fix, and External start pattern select by DI Input
- 4, 2 or 1 Patterns (16, 32 and 64 steps respectively)
- Communicates with MicroScan SCADA and Shimaden Lite software
- High and low alarms
- Event output, Heater break alarm
- Retransmission 4~20mA or 0~10V
- Optional Status Output
- Comms: RS232C, RS485; Shimaden

Code	Specifications
FP93-8Y-90-0000	Ramp Controller, Multi input, 4~20mA output, 100~240Vac
FP93-8Y-90-1000	Ramp Controller, Multi input, Relay output, 100~240Vac, 4 x DO
FP93-8Y-90-1050	Ramp Controller, Multi input, Relay output, 100~240Vac, 4 x DO, RS485
FP93-8I-90-1050	Ramp Controller, Multi input, 4~20mA output, 100~240Vac, 4 x DO, RS485
FP93-8P-90-1000	Ramp Controller, Multi input, SSR output, 100~240Vac, 4 x DO

FP23A

High Accuracy Programmable Controller (96 x 96mm)

- 2 channel controller (Basic type: 1 channel controller)
- Independent 2 loop / 2 input operation control
- High accuracy ± (0.1% FS + 1 digit)
- High Sampling Cycle 0.1 sec
- High resolution 1/ 1000°C display achieved. *Only for R.T.D input (scale: 0.000~30.000°C)
- Programmable Max. 400steps (400 steps x 1 pattern to 20 steps x 20 patterns)
- Auto-Tuning PID / Expert PID

- Max. 10 Zone PID control available
- Independent Universal Input
- User friendly operation (Menu Driven: 4 Lines LCD Display)
- Easy setting & maintenance via Infrared COM port on the front panel
- Interface RS232C/RS485 (MODBUS / Shimaden)
- Front dust/splash-proof IP66
- Universal power supply (100~240Vac ±10%)
- Sensor power supply option (24Vdc 25mA)

Code	Specifications
FP23A-SSYN-000000A	Programmable Controller, Relay Output
FP23A-SSYN-000005A	Programmable Controller, Relay Output, RS485
FP23A-SSPN-000015A	Programmable Controller, SSR Control Output, External control DI 10 points/ DO 9 points, RS485

ANALOGUE CONTROLLERS

BTC-404

Digital / Analogue Controller (96 x 96mm)

- On/off or proportional control selectable
- Input: Thermocouple or RTD available
- Output: SSR drive, Relay
- Compact size, only 53mm deep
- Wide selection of ranges
- Deviation alarm ±10% of span
- Power Supply: 90~264Vac

Code	Specifications
BTC-404-43311010	Digital / Analogue Controller, Pt100, 0~200°C, Relay, Alarm, 90~264Vac
BTC-404-42511010	Digital / Analogue Controller, Type K, 0~400°C, Relay, Alarm, 90~240Vac
BTC-404-41511010	Digital / Analogue Controller, Type J, 0~400°C, Relay, Alarm, 90~240Vac
BTC-404-42811010	Digital / Analogue Controller, Type K, 0~1200°C, Relay, Alarm, 90~240Vac

BTC-704

BrainChild

Digital / Analogue Controller (72 x 72mm)

- On/off or proportional control, selectable
- Input: Thermocouple or RTD, available
- Output: SSR drive, Relay
- Compact size, only 65 mm deep
- Wide selection of ranges
- Deviation alarm ±10% of span
- Power Supply: 90~240Vac

Code	Specifications
BTC-704-41511010	Digital / Analogue Controller, Type J, 0~400°C, Relay, Alarm, 90~240Vac
BTC-704-42511010	Digital / Analogue Controller, Type K, 0~400°C, Relay, Alarm, 90~240Vac
BTC-704-42811010	Digital / Analogue Controller, Type K, 0~1200°C, Relay, Alarm, 90~240Vac
BTC-704-43311010	Digital / Analogue Controller, Pt100, 0~200°C, Relay, Alarm, 90~240Vac

BTC-901

BrainChild

Digital / Analogue Controller (48 x 48mm)

- On/off or proportional control, selectable
- Input: Thermocouple or RTD, available
- Output: SSR drive, Relay
- Compact size, only 86 mm deep
- Power Supply: 200~240Vac
- Other options are available on request

Code	Specifications
BTC-901-23211000	Analogue Controller, 48 x 48mm, Pt100, 0~100°C, Relay, 200~240Vac
BTC-901-23311000	Analogue Controller, 48 x 48mm, Pt100, 0~200°C, Relay, 200~240Vac

LIMIT CONTROLLER

L91

BrainChild

Safety Limit Controller (48 x 48mm)

- The limit control Limitrol L91 is an over temperature protection or a high limit safety device with a latching output for shutting down the power in an abnormal condition
- High limit, low limit and high/low limit control, programmable
- Input: Thermocouple, RTD, mV, mA, available
- Output: SSR drive, Relay
- Sensor break detection
- IP30 front panel
- Power supply: 90~264Vac

Code	Specifications
L91-4111	Safety Limit Controller, Standard input, Dual Relay, 90~264Vac
L91-411B	Safety Limit Controller, Standard input, Relay, 90~264Vac, Event input option
L91-5111	Safety Limit Controller, Standard input, Dual Relay, 11~26Vac/dc

REFRIGERATION CONTROLLERS

C12 Series

Refrigeration Controllers

C1206-F

Features
- 1x Sensor, 1x Relay (2x Relays for Model C1206-F)
- Timed defrost
- Safe sensor fail mode (Model C1206-H)
- Manual defrost button.(Model C1206-F)
- Range: -40~60°C (-40~100°C for Model C1206-H)
- Power Supply: 220Vac
- Cut out 71w x 30h
- Heating and cooling
- Modbus RS485 (Model C1206-F)
- Sensor cable length: 2m

Code	Specifications
C1206-F	3 Digit Controller, 2 Relay, -40~60°C, RS485
C1206-H	3 Digit Controller, 1 Relay, -40~100°C
C1210	2 Digit Basic Controller, 1 Relay, -40~60°C
Accessories	
103AT	Replacement NTC sensor with 10m lead for controllers above

SERVO CONTROLLERS

EM51

SHIMADEN CO., LTD.

Servo Controller (80 x 50mm)

The EM51 is a servo controller that converts a standard 4~20mA or 0-10Vdc output from a controller to a drive open, null or drive closed position with potentiometer position feedback suitable for servo motors.

Features:
- Inputs: Current or Voltage
- Plug-in to DIN rail mount base
- Outputs: SSR drive or Relay
- Feedback resistance: 100~2000 ohms, 3 wire
- Dimensions: 80 x 50mm

Code	Specifications
EM51-2Y16-0	Servo Controller 4~20mA Control input, Relay output, 220~240Vac

Intelligent Servo Controller (96 x 96mm)

- High visibility of Control Motor opening display, which is shown in a bar graph (20 dots) and 7 segments
- Zero/Span adjustment of opening can be done automatically at the touch of a single button
- By means of the combination of SSR and relay, the drive unit can control directly large capacities (20-240V / 2A)
- A wide selection of additional functions (optional) is available to suit various requirements. (Events, analog output, external operation, square root extraction, communication function)
- Dust and splash proof front panel equivalent to IP66
- Dimensions: 96 x 96mm

Code	Specifications
EM70-4Y-00000	Intelligent Servo Controller, 4~20mA Control input, Contact output, 220~240Vac

CONTROLLER SOFTWARE

Shimaden LITE

Shimaden Lite Controller Software

- Auto seek: Find controllers automatically
- Auto configuration: Shimaden Lite automatically adopts the connected controller configuration
- User friendly controller configuration from computer
- Password protection
- Trend graph of PV & SV
- Trend graph shows the live readings with an adjustable scan rate of 1, 15 or 60 secs
- Controller identification label
- CSV Report generation for viewing data in Excel
- Alert window for showing status of controller events

Shimaden Controllers can also be used with **MicroScan SCADA software** - see page 141.

Shimaden Lite Software is "FREE" with Shimaden controllers. With the wizard set-up feature the program automatically locates the controllers and configures the software ready for use, no programming is required. All you need is any Shimaden controller with the communications option fitted. It's the best and cheapest way to get your process on line as a convenient mini SCADA system.

Shimaden Lite is free to download from our website.:
https://www.intech.co.nz/software-installation/shimaden-lite/

Shimaden Lite - connection example

USB/RS232

2400-IS / 2100-IS
USB/RS232 to RS485 Converter

Controllers

Indicators

RS485 Data Highway
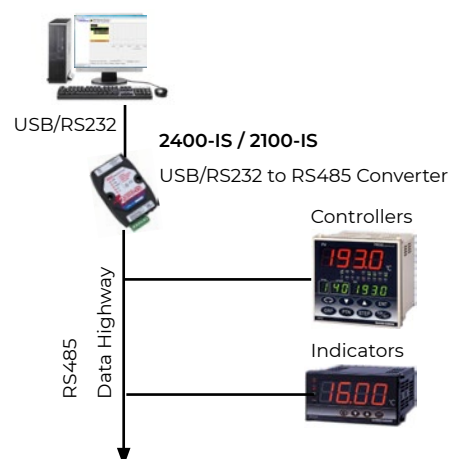
PROCESS DISPLAYS

IN-uP4

Universal Input Indicator

- Universal Input Panel Mount Indicator (Voltage, Current, Thermocouple, RTD/NTC, Pulse/Frequency, Potentiometer)
- Programmable via USB Port using uP Configure software and XU-USB (Rev 1) key
- Simple setup and calibration
- 4 digit LED Display
- Option to add two Relay Outputs (with two setpoint indicator LED's), and one 4~20mA Analogue Output
- Universal Power Supply of 24~250Vac / 19.5~250Vdc
- Sensor Power Supply (22Vdc 50mA max)
- Dimensions: H=48mm, W=95mm, D=84mm
- IP65

Code	Specifications
IN-uP4	Universal Input Indicator, panel mount with no outputs
IN-uP4X	Universal Input Indicator, panel mount with 2 x Relay Outputs (with two set point indicator LED's) and 1 x Analogue Output 4~20mA
Accessories	
XU-USB	USB Programming Key for programming the IN-uP4 using **uP Configure Programming Software**, free to download from our website.

uP4-Din

Universal Input Indicator

- Universal Input with Indication (Voltage, Current, Thermocouple, RTD/NTC, Pulse/Frequency, Potentiometer)
- DIN Rail mount
- Universal AC or DC supply 24~250Vac / 19.5~250Vdc
- Two Relay Outputs (with Setpoint LEDs)
- Option to add one Retrans Analogue Output (4~20mA or 0~10Vdc selectable)
- Programmable via USB Port using uP Configure Programming Software (version 1.5.23 or later) and the XU-USB (Rev 1) key
- Simple setup and calibration
- 4 digit LED display with transparent cover
- Sensor power supply (22Vdc, 25mA max)
- Dimensions: H=112mm, W=23mm, D=120mm

Code	Specifications
uP4-Din-R2	Universal Input Indicator, Din-Rail, complete with 2 x Relay Outputs
uP4-Din-R2A	Universal Input Indicator, Din-Rail, complete with 2 x Relay Outputs and 1 x Analogue Output (4~20mA or 0~10Vdc selectable)
Accessories	
XU-USB	USB Programming Key for programming the uP4-DIN using **uP Configure Programming Software**, free to download from our website.

SD17

Digital Indicator (48 x 96mm)

- ±0.3% high accuracy indication
- Large 20 mm bright display: Easy to read from long distances or dark and dim places
- Improved visibility with selectable red or white LED
- Universal input, multi-range
- Normal and inverse scaling for voltage and current inputs and analog outputs
- IP66 dust and splash proof front panel
- Wide range of optional features:
  - 24Vac power supply
  - Two alarm relay outputs
  - Analog output 4~20mA or 0~10V
  - 24Vdc sensor power supply
  - Communication interface RS485 or RS232C (Shimaden standard protocol/MODBUS)
- Can be combined with six-point rotary selector switch KR17.

Code	Specifications
SD17-890-00000	Digital Indicator, Multi Input, 100~240Vac
SD17-808-00000	Digital Indicator, Multi Input, 24Vac/dc
SD17-890-10000	Digital Indicator, Multi Input, 100~240Vac, 2 Alarms.
SD17-490-00000	Digital Indicator, Current Input, 100~240Vac
SD17-408-00000	Digital Indicator, Current Input, 24Vac/dc
SD17-490-10000	Digital Indicator, Current Input, 100~240Vac, 2 Alarms
SD17-408-10000	Digital Indicator, Current Input, 24Vac/dc, 2 Alarms
SD17-490-14000	Digital Indicator, Current Input, 100~240Vac, 2 Alarms, 4~20mA Retransmission
SD17-408-14000	Digital Indicator, Current Input, 24Vac/dc, 2 Alarms, 4~20mA Retransmission
SD17-408-04000	Digital Indicator, Current Input, 24Vac/dc, AO Retransmission 4~20mA.
SD17-490-04000	Digital Indicator, Current Input, 100~240Vac, AO Retransmission 4~20mA.

R1-4DO

Programmable Digital RPM/Rate/Hz Meter (96 x 48mm)

- Digits: 4 digit LED
- Power supply: 110Vac (Option) / 220Vac Standard
- Sensor power: 12Vdc, 60mA
- Prescaler: 000.001~999.999
- Range: 4.0-300,000RPM
- Input: 5-30VDC 3K3. Single or multi pulse per revolution
- Control output 2 x Relay 3A250Vac
- Size: 96 x 48mm

Code	Specifications
R1-4DO	Programmable Digital RPM/Rate/Hz Meter

SD24

High Accuracy Digital Indicator (48 x 96mm)

- High Accuracy ±0.1% FS+1 digit
- 1/1000°C Resolution Indication Possible (Pt100 input 0.000 – 30.000°C)
- Microprocessor based. 5 digit display (40,000 count)
- Inputs: Thermocouple, RTD, Current, Voltage
- High display accuracy of ±(0.1% FS + 1 digit)
- 3 Display modes: Peak hold, Bottom hold, Display hold.
- Two external control inputs standard (configurable)
- Communicates with MicroScan SCADA and Shimaden Lite
- IP66 front panel
- LED display with 14.3mm high digits

- 2 Relays for events
- 4 Relays for events
- RS232C, RS485, Modbus/Shimaden

- Optional power supply of 24Vac/dc
- Analogue output 4~20mA or 0~10V
- Sensor Power Supply (24Vdc 50mA)

Code	Specifications
SD24-490-00000	High Accuracy Digital Indicator, Current Input, 100~240Vac
SD24-490-20000	High Accuracy Digital Indicator, Current Input, 100~240Vac, 2 Relays
SD24-890-10000	High Accuracy Digital Indicator, Universal Input, 100~240Vac, 4 Relays
SD24-408-10000	High Accuracy Digital Indicator, Current Input, 24Vac/dc, 4 Relays

IN-P

Multifunction Process Indicator

- Multiple Input Types
- 6 Digit LED Display
- Simple setup and calibration
- On screen step by step instructions
- 5 Buttons for easy operator interface
- Option to add up to 6 Relay Outputs
- Analogue Output Retransmission option
- Serial RS485/RS232 port option with Modbus RTU
- Ethernet port option with Modbus TCP
- Wide Range of Power Supply options from 10V to 265V
- Multiple functions available for customising to your application

Code	Specifications
IN-P	Multifunction Process Indicator, mA, V, RTD, T/C. Standard either 1 x 4~20mA, 0~10V input + 24V Excitation or 1 x RTD Pt100 Input or 1 x Thermocouple B, J, K, N, R, S, T Input
Options	
Extra Inputs	4 Inputs of either 4~20mA, 0~10V, RTD Pt100 or Thermocouple
R2	2 x 5A Relay Outputs
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA or 0~10V
WS232 / WS485	Serial port RS232 or RS485: Includes Modbus RTU
LV	Low Voltage Power Supply: 15~48Vac / 10~72Vdc

IN-R

Large Display Tachometer Indicator

- Large 4 Digit LED Display
- Microprocessor Based for Wide Range Calibration
- Inputs: 0~30V, magnetic pickup, NPN, PNP, TTL, Namur
- 2 or 4 relay option – 4 set points with delay
- 4 LED's for Alarm indication
- Analogue Output Retransmission option
- Simple setup and calibration
- On Screen Step by Step Instructions
- 5 Buttons for easy Operator Interface
- Wide Range of Power Supply options from 10V to 265V
- Excitation supply 24Vdc

Code	Specifications
IN-R	Tachometer Indicator, No Relay Outputs, 85~265Vac / 95~370Vdc Power supply
Options	
R2	2 x 5A Relay Outputs
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA or 0~10V
LV	Low Voltage Power Supply: 15~48Vac / 10~72Vdc

IN-RT

Flow Rate Indicator With Totaliser

- 6 Digit LED Display
- Inputs: 0~30V, magnetic pickup, NPN, PNP, TTL, Namur
- 2 or 4 relay option – 4 set points with delay
- Analogue Output Retransmission option
- Serial RS485/RS232 port option with Modbus RTU
- Simple setup and calibration
- On screen step by step instructions
- 5 Buttons for easy operator interface
- Wide Range of Power Supply options from 10V to 265V

Code	Specifications
IN-RT	Flow Rate Indicator + Totaliser; 85~265Vac / 95~370Vdc Power supply
Options	
R2	2 x 5A Relay Outputs
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA or 0~10V
WS232 / WS485	Serial port RS232 or RS485: Includes Modbus RTU
LV	Low Voltage Power Supply: 15~48Vac / 10~72Vdc

IN-RTB

Flow Rate and Batching Controller

- Dual 6 digit LED displays
- View flow rate & total simultaneously
- Inputs: 0~30V, magnetic pickup, NPN, PNP, TTL, Namur
- 2 or 4 relay option – 4 set points with delay
- Analogue output retransmission option
- Serial RS485/RS232 port option with Modbus RTU
- Simple setup and calibration
- On screen step by step instructions
- 5 buttons for easy operator interface
- Wide range of power supply options from 10V to 265V

Code	Specifications
IN-RTB	Flow Rate and Batching Controller, 85~265Vac / 95~370Vdc
Options	
R2	2 x 5A Relay Outputs
R4	4 x 5A Relay Outputs
A	Analogue Output Retransmission: 4~20mA or 0~10V
WS232 / WS485	Serial port RS232 or RS485: Includes Modbus RTU
LV	Low Voltage Power Supply: 15~48Vac / 10~72Vdc

APM-PROC

Process Meter APM

- A specialized meter for process control applications, including variable speed drives, flow and pressure transducers and linear and non-linear sensors.
- Programmable scale, range and outputs x 2 configurable between 4-20mA and Transistor output
- Can measure 0 to +/- 10Vdc or 0-50mA
- Micro Meter version available for low amperage measurements up to 200uA DC
- 0.1% accuracy across the input range

Code	Specifications
APM-PROC-APO	APM Process Meter, Positive LCD with Outputs

APM-AMP

Amp Meter APM

A general purpose meter for measuring AC & DC current, including control panels and power supplies. Benefits include:

- Auto-detects AC or DC input
- Measures 5A direct or up to 10,000A with a current transformer
- 1% accuracy
- 40 Segment curved easy view display
- Programmable scale, range and outputs x 2 configurable between 4-20mA and Transistor output
- 2 x alarm set-points
- Programmable background colour, over/under alert

Code	Specifications
APM-AMP-APO	APM Amp Meter, Positive LCD with Outputs

APM-FREQ

Frequency Meter APM

The APM Frequency Meter is a specialized meter for measuring frequency and speed. It's used in applications including marine, leisure and material handling. Benefits include:

- Accurately measures DC pulses from a sensor
- Supports a wide range of inputs between 2~400Hz
- 0.5% accuracy at 25°C
- 40 Segment curved easy view display
- Programmable scale, range and outputs x 2 configurable between 4-20mA and Transistor output
- 2 x alarm set-points
- Programmable background colour, over/under alert

Code	Specifications
APM-FREQ-APO	APM Frequency Meter, Positive LCD with Outputs

APM-VOLT

Volt Meter APM

The APM Volt Meter is a general purpose meter for measuring mains voltage for applications including control panels and power supplies.
Benefits include:

- Auto-detects AC or DC input
- Measures up to 600V DC/AC
- 1% accuracy
- 40 Segment curved easy view display
- Programmable scale, range and outputs x 2 configurable between 4-20mA and Transistor output
- 2 x alarm set-points
- Programmable background colour, over/under alert

Code	Specifications
APM-VOLT-APO	APM Voltmeter, Positive LCD with Outputs

LOOP POWERED DISPLAYS / INDICATORS

LPI-LCD-6

4~20mA Panel Display. Loop Powered

The LPI-LCD-6 - 4~20mA panel display is ideal for displaying a variety of process variables, and is easy to scale to your required engineering units.

Features:

- Easy installation (front mounting unit takes up virtually no space behind the panel).
- Loop powered display backlight.
- Protection against reverse wiring and accidental 24V supply.
- Easy calibration via on-screen menu.

Code	Specifications
LPI-LCD-6	One 4~20mA Loop Powered Input Panel Mount Display.

M7

4~20mA Plug-in Display

- 4~20mA loop powered input
- 4 digit display, -1999 to 9999
- Housing: Plastic
- Dimensions: 45.4 x 66.9 x 46.9mm (WxHxD)
- Stable and reliable performance
- Easy calibration via on-screen menu
- Widely used both in bright light and dark light conditions
- Connects directly onto the 4~20mA loop using any device fitted with a Hirschmann type plug

Code	Specifications
M7	4~20mA Loop Powered Indicator

SELECTOR SWITCH

KR17

Selector Switch (96 x 48mm)

- 6 Point Rotary Selector Switch
- Can switch thermocouple and voltage up to 6 points
- Panel Mount
- Ideal for use with the SD17 or SD24 digital indicators

Code	Specifications
KR17-0	6 Way Multiple Point Selector Switch

WEATHER COVERS

Y92A Series

Waterproof Covers

- Ideal for Food Processing Machines or other applications that require water tightness
- Four sizes available (see below)
- Conforms to IP66 or NEMA4 (indoors)

Code	Specifications
Y92A-48N	Waterproof Cover 48 x 48mm
Y92A-49N	Waterproof Cover 96 x 48mm
Y92A-72N	Waterproof Cover 72 x 72mm
Y92A-96N	Waterproof Cover 96 x 96mm

CR06

BrainChild

Hybrid Chart Recorder

- Six channel dotting Hybrid Recorder
- Configurable inputs: dc volts / dc milli-amps / Thermocouples / Pt100
- 100mm chart width
- Printing by a ribbon cassette
- Date stamping
- Chart speed of 10~1500mm/hr in 28 steps
- Scan rate of 10sec/6 channels max
- Digital outputs: 6 relay outputs for alarms
- Digital inputs: 3 digital inputs for 12 selectable function
- Comms: RS232C (standard) or RS485 (option)
- Front panel protection of IP65
- Dimensions: Front Bezel = 144x144mm, Cut Out = 138x138mm,
- Depth = 150mm

Code	Specifications
CR06-000	Six Channel Recorder, RS232
Options:	

6 Relay Outputs	
3 Digital Inputs	
Out of paper sensor	
Ribbon Cassette	
CR06 Chart	

PR Series

BrainChild

Paperless Recorder

- Touch Screen, TFT, 65K color
- 100 msec. scan rate
- Internal memory: 256 MB Flash
- CPU: ARM Cortex-A8, 1Ghz
- Power Supply: 90~250Vac Standard /11~36Vdc Optional
- Standard: Ethernet, SD slot & USB
- Option: RS232/422/485 & Pulse input
- Protection: IP65 front & IP20 rear
- Standards: CE, cULus & RoHS
- Pulse input for flow applications
- Direct Printer connectivity
- Remote IO channels, Virtual channels
- Webserver & Email directly from Recorder
- Master & Slave, Modbus RTU and TCP protocols
- Custom display pages similar to HMI
- Batch operations, built in security & FDA 21 CFR

PR20

Code	Specifications
PR10	Low cost Paperless Recorder, Screen size 4.3", 3, 6 channels
PR20	Popular Paperless Recorder, Screen size 5.6", 3, 6, 12, 18, 24 channels
PR30	High-end Paperless Recorder, Screen size 12.1", 3, 6, 12, 18, 24, 30, 42, 48 channels

DATA ACQUISITION

I/O Remote Stations / PLC Multiplexers

page 136

SCADA Software
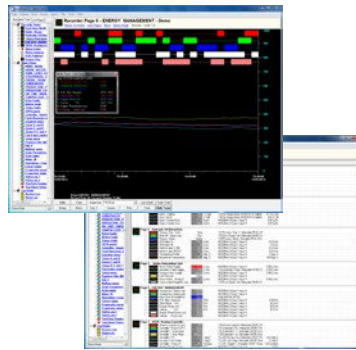
page 141

Communication Converters

page 144

Mini Packs

page 147

Cloud Based Monitoring

page 148

Telemetry / Wireless Connections

page 150

Data Loggers

page 154

For the latest information & pricing check
www.intech.co.nz

2400 SERIES

2400-A16

Remote Station / Intelligent Multiplexer / Remote I/O

- Up to 16 Isolated Universal Analogue Inputs
- Each input is user selectable in programming software to any of the following: Thermocouple, RTD, mA, mV, Volts, Pulse/Digital
- 4 dedicated digital inputs, for counting or on/off status
- 2 relay outputs, for control or alarm functions
- 2 analogue 4~20mA outputs
- Comms – Port 2: Isolated RS232 / RS485
  Port 1: Isolated RS422 / RS485 or Ethernet TCP/IP (option)
- Input expansion, up to four 16 input 2100-M units
- Output expansion, up to two 16 relay 2400-R2 units
- Modbus RTU, Modbus TCP protocols standard
- Channel selection: 'binary' or 'clock/reset'
- 0.1% accuracy
- DIN rail mount

PLC

This station has all the friendly features of a monitoring station. The Isolated Universal Analogue Inputs are software programmable using the user friendly MicroScan SCADA (Version 5.1 or later), or Station Programmer software.

Each input can be configured for any of the following inputs: RTD Pt100/Pt1000, Thermocouple, mA, mV, V & Pulse/Digital. There is a convenient wide choice of spans plus Custom spans can be configured also. The accuracy does not alter when changing spans.

The analogue inputs on the 2400-A16 can be expanded up to 76 using the 2100-M Input Multiplexers.

PLC Connection options:
- Modbus RTU/TCP, or
- Clock/Reset, or
- Binary Channel selection

2400-A16
Intelligent
Multiplexer

Code	Specifications
2400-A16-I16-485-H	16 Inputs, RS422/RS485 Comms, 85~265Vac, 95~370Vdc Power Supply
2400-A16-I16-485-M	16 Inputs, RS422/RS485 Comms, 24~48Vac, 17~72Vdc Power Supply
2400-A16-I16-485-L	16 Inputs, RS422/RS485 Comms, 10~30Vdc Power Supply
2400-A16-I16-NET-H	16 Inputs, Ethernet TCP/IP Comms, 85~265Vac, 95~370Vdc Power Supply
2400-A16-I16-NET-M	16 Inputs, Ethernet TCP/IP Comms, 24~48Vac, 17~72Vdc Power Supply
2400-A16-I16-NET-L	16 Inputs, Ethernet TCP/IP Comms, 10~30Vdc Power Supply
2400-A16-I8-485-H	8 Inputs, RS422/RS485 Comms, 85~265Vac, 95~370Vdc Power Supply
2400-A16-I8-485-L	8 Inputs, RS422/RS485 Comms, 10~30Vdc Power Supply
2400-A16-I8-NET-H	8 Inputs, Ethernet TCP/IP Comms, 85~265Vac, 95~370Vdc Power Supply
Accessories	
XU-USB	USB Programming Key for programming the **2400-A16**. 2400-A16-NET: The XPort® Ethernet converter must be programmed via the Ethernet TCP/IP port.

2400-A16-I16-SD-NET

Stand Alone Memory Logging option for 2400-A16

- Logging of analogue inputs 1~16, digital inputs 1~4 and ambient sensor onto an SD Card.
- Up to 7858811 data samples.
- Data stores rates selectable from 1sec~60min.
- Cyclic or Stop modes when SD Card is full.
- Internal real time clock with battery backup.
- Read SD memory card by removing SD Card and reading from a computer SD port, or using comms.
- Includes 1 x Spare SD Card.

The **SD version** of the 2400-A16 is a great way to achieve a stand-alone method for data logging. The station can be used as a 16 input stand-alone logger, or as part of a MicroScan SCADA (Version 5.1 or later), data highway with backup logging facility.

The user friendly and free to download **Intech Micro Station Programmer** software (version 5.2.3613.5 or later), supports the reading of SD cards from the 2400-A16-I16-SD-NET.

Code	Specifications
2400-A16-I16-SD-NET	16 Isolated Universal Input Channels, With SD Data Logging, Port 1 Fitted with Ethernet TCP/IP Comms, 85~265Vac, 95~370Vdc.
Accesories	
XU-USB	USB programming Key

2400-R2

Relay Expansion Unit for the 2400-A16
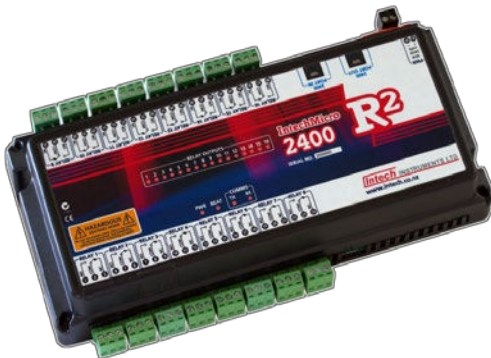
- 16 Digital, Isolated, Relay Outputs
- Cascade option for a second 2400-R2
- Expandable to 32 outputs with another 2400-R2
- Cost Effective Output Expansion for the 2400-A16
- Easy Programming Via MicroScan
- Programmable Relay States – NO or NC
- 24Vdc, 10VA Power Supply
- Compact DIN rail mount enclosure
- Easy to install

The 2400-R2 16 Channel Relay Output Expansion Module is used in conjunction with the 2400-A16. This allows the 2400-A16 to stand alone as a 16 channel controller/alarm unit.

A second 2400-R2 can then be connected to the first 2400-R2, creating a 32 channel controller/alarm unit. The 2400-R2 relay outputs can be used for any combination of control and alarm functions.

Code	Specifications
2400-R2	16 Relays Output Expander, 24Vdc ±15%, 10VA Power Supply
Option	
PSW-10-F	Instrument Quality 24Vdc power supply for the 2400-R2

2300 SERIES

2300 Series

Intech Micro 2300 Series I/O Remote Stations & PLC

- Low Cost I/O Remote Stations
- Modbus RTU with Modbus TCP option
- MicroScan V5 Compatible - seamless integration
- Also ideal for use when inputs/outputs are required for a PLC and Modbus comms are available
- Plug-in connectors makes replacement easy
- Programmable ranges within input type
- 1.0 kV or greater Isolation
- 0.2% accuracy (12 Bit)
- Compact DIN rail mount enclosure
- LEDs indicate I/O status plus comms and power supply
- Comms fail alarm (optional)
- Power supply: 24Vdc

Code	Specifications
2300-A8II	**8 Isolated Current Inputs - I/O Remote Station** Isolated 1.0KV isolation between each input. / 0~20mA inputs Dip switch selectable. / 250 ohms input resistance./ 1.5KV isolation between inputs and power supply and comms (RS485). / Power Supply = 24Vdc @ 40mA typical.
2300-A8VI	**8 Isolated Voltage Inputs - I/O Remote Station** Isolated 1.0KV isolation between each input. / 2~10Vdc inputs Dip switch selectable. / 20 Kohms input resistance / 1.5KV isolation between inputs and power supply and comms (RS485) / Power Supply = 24Vdc @ 40mA typical.
2300-Tc8	**8 Channel Thermocouple Inputs - I/O Remote Station** Isolated 350V peak isolation between each input / Programmable inputs type K, J, T, E, N, B, S, R, with CJC. /Programmable mV inputs 0~50mV, -100~100mV. All inputs are set to the same type./ 1.5KV isolation between inputs and power supply and comms (RS485). / Power Supply = 24Vdc @ 40mA typical.
2300-RTD6	**6 Channel RTD Inputs - I/O Remote Station** All inputs are set to the same type / 1.5KV isolation between inputs and power supply and comms (RS485) / Resolution = 0.1°C / Power Supply = 24Vdc @ 55mA typical.
2300-MULTI	**Mixed Inputs and Outputs - I/O Remote Station** 2 x RTD inputs (Pt100, Pt1000, Ni120, Ni1000); 2 x 0(4)~20mA inputs OR 2 x 0~10Vdc inputs, 1 x 4~20mA output, 4 x Digital inputs, 2 x Digital outputs. 1.5KV isolation between inputs and power supply and comms (RS485). Power Supply = 24Vdc @ 70mA typical / Using the output types requires an independent and isolated power supply.
2300-D16	**16 Channel Digital Inputs - I/O Remote Station** Input voltage: 12~24Vdc / 1.5KV isolation between inputs and power supply and comms (RS485) / Power Supply = 24Vdc @ 30mA typical.
2300-RO4	**4 Channel Relay Outputs - I/O Remote Station** Contact rating: 240Vac @ 0.5A, 28Vdc @ 1A / 1.0KV isolation between inputs and power supply and comms (RS485) / One output can be dedicated to Comms Fail Alarm / Power Supply = 24Vdc @ 100mA typical.
2300-AO8I	**8 Current Outputs - I/O Remote Station** All output negatives internally connected /0~20mA outputs Dip switch selectable / 1.5KV isolation between outputs and power supply and comms (RS485) / Power Supply = 24Vdc @ 18mA typical. Requires an independent and isolated power supply to power logic outputs = 24Vdc @ 175mA typical.
Option	
PSW-10-F	24Vdc Instrument Quality Power Supply

2100 SERIES

2100-A16

Analogue Input Remote Station / PLC Multiplexer

- Each input is user selectable in MicroScan software to any of the following: RTD, mA, mV, volts
- 16 analogue differential inputs, (RTD single ended)
- 4 digital inputs, for counting or on/off status
- 2 relay outputs, for control or alarm functions
- 2 analogue outputs
- Comms: RS485 or RS422 selectable, Modbus RTU Standard, Ethernet TCP/IP optional
- Input expansion, up to four 16 input 2100-M units
- Output expansion, up to two 16 relay 2100-R2 units
- Radio modem compatible
- 16 resident 'computer free' on board controllers
- Use with the two on board relays or the 2100-R2 unit

Code	Specifications
2100-A16	Analogue Input Remote Station / PLC Multiplexer, RS485 Comms, 85~264Vac/dc Power Supply
2100-A16-NET	Analogue Input Remote Station / PLC Multiplexer, Ethernet Comms, 85~264Vac/dc Power Supply

2100-M

Analogue Input Remote Station / PLC Multiplexer

- 16 Channel Multiplexer
- Field Programmable Inputs
- Field Programmable Output
- Input Types Available:
  - RTD Pt100 (-200~600°C) / (-330~1100°F)
  - MilliAmp (4~20 / 0~20mA)
- Clock/Reset Channel Selection, or Binary Channel Selection
- Universal power supply: 85~264Vac/dc (Standard) / 23~90Vdc Field selectable.
- High Accuracy 0.1%
- Compact DIN rail mount enclosure
- Easy to install
- Solid State Switches for reliability

Code	Specifications
2100-M-R	Analogue Input Multiplexer, RTD Input Range, 4~20mA Output, Clock/Reset, Upscale, 85~264Vac/dc Power Supply
2100-M-I	Analogue Input Multiplexer, Milli-Amp Input Range, 4~20mA Output, Clock/Reset, Upscale, 85~264Vac/dc Power Supply

Modbus protocols **are NOT** available with the 2100-M.
If you require a multiplexer with Modbus Protocols please view the 2400-A16 on page 136.

Channel select by PLC is the same for both multiplexers:

Inputs Pt100 /Pt1000* Thermocouple* mA all ranges mV & V* *2400-A16 only	2400-A16 or 2100-M	PLC
	Clock Reset	Solid state outputs
	BCD Channel Select	Solid state or Relay outputs
	Analogue output	Analogue input
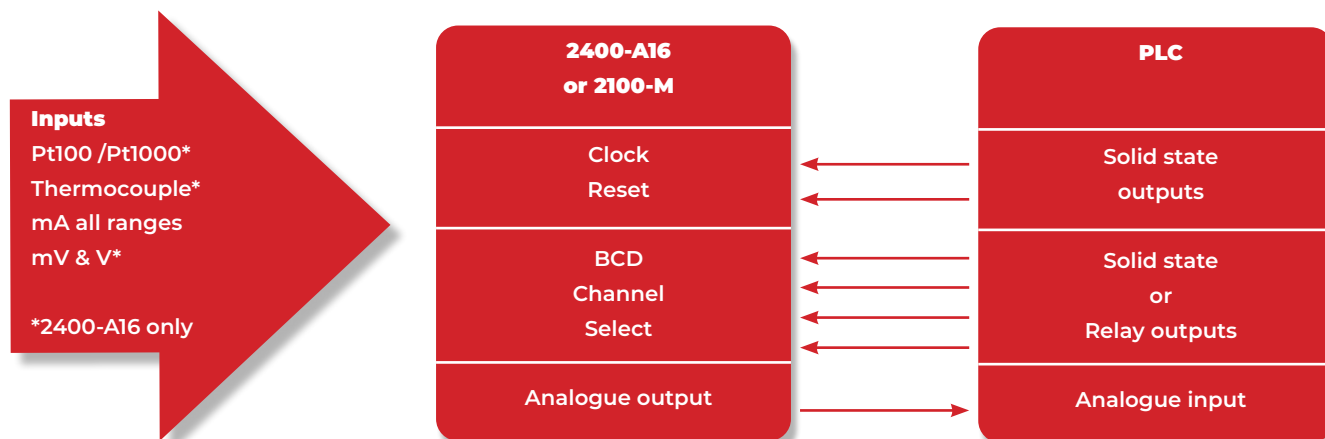
2100-D

Digital Input/Output Remote Station

- RS422/RS485 up to 1200m
- Selectable Baud Rates
- Digital Inputs:
  - State or Count
  - Speeds to 500Hz
- Easy Programming via MicroScan Maps
- Programmable Station Number
- Scaled Rate Value via MicroScan Recorder
- Scaled Totaliser Value via MicroScan Recorder
- Programmable Relay States – NO or NC
- Comms Failure Time-out using Relay 12
- Comms TXE and TX delay programming
- Programming information retained on power down
- Universal AC/DC Power Supply
- Compact DIN rail mount enclosure

Code	Specifications
2100-D	12 Digital Inputs and 12 Digital Outputs, RS485 Comms, 85~264Vac/dc Power Supply

2100-R2

Relay Expansion Unit for 2100-A16

- 16 Digital, Isolated, Relay Outputs
- Cascade option for a second 2100-R2 [with 2100-A16 (rev 1.3) only]
- Enables 32 Digital, Isolated, Relay Outputs
- Cost Effective Output Expansion for 2100-A16
- Easy Programming via MicroScan Maps
- Programmable Relay States – NO or NC
- Universal AC/DC Power Supply
- Easy to install
- Compact DIN rail mount enclosure

Code	Specifications
2100-R2	Relay Output Expansion Unit, 85~264Vac/dc Power Supply

MicroScan SCADA

Data Logging and SCADA Software
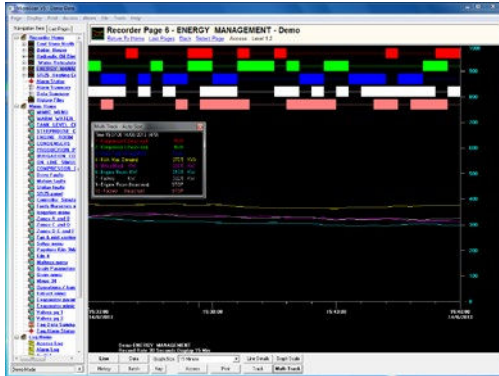
- Real Time Trends
- Data Screens
- Live mimic screens (MMI)
- History and Search Screens
- Totalising in engineering units
- Alarms and Events
- Mobile Alarm and SMS Text Messaging via Eze Controllers
- Mathematical blocks
- ISO 9000 support
- Operator logs
- Auto and manual printouts
- Cost effective field interface hardware
- Intech remote stations and PLC support
- Up to 64 stations

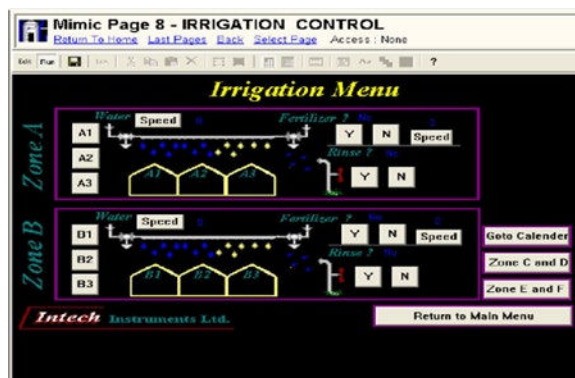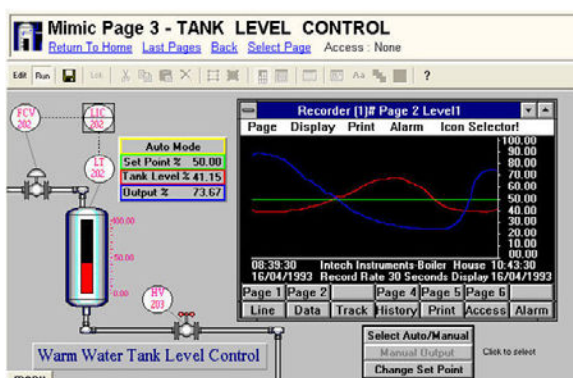| Code	Specifications
MicroScan Software "Recorder Packages" - Comes complete with USB Dongle	
R8	MicroScan Recorder, 8 inputs, 8 outputs
R16	MicroScan Recorder, 16 inputs, 16 outputs
R32	MicroScan Recorder, 32 inputs, 32 outputs
R50	MicroScan Recorder, 50 inputs, 160 outputs
R100	MicroScan Recorder, 100 inputs, 160 outputs
R200	MicroScan Recorder, 200 inputs, 160 outputs
R300	MicroScan Recorder, 300 inputs, 160 outputs
R400	MicroScan Recorder, 400 inputs, 160 outputs
R600	MicroScan Recorder, 600 inputs, 160 outputs
R800	MicroScan Recorder, 800 inputs, 160 outputs
R1000	MicroScan Recorder, 1000 inputs, 160 outputs Note: Maximum recorder lines = 1000 made up of 100 pages with 10 lines on each page
MicroScan Software "Tag Packages" - Comes complete with USB Dongle. **Includes: Recorder, Mimics, Shimaden and DDE**	
T50	MicroScan Tag package, 50 tags
T75	MicroScan Tag package, 75 tags
T150	MicroScan Tag package, 150 tags
T300	MicroScan Tag package, 300 tags
T500	MicroScan Tag package, 500 tags
T750	MicroScan Tag package, 750 tags
T5000	MicroScan Tag package, 5000 tags Note: <Maximum Tags = 5000 (max I/O = 5000)
Note 1	Mimics (Only available with Tag option): No. of pages: 100 max. / I/O per page: 380 max Controllers: 500 on/off software controllers Each with individual: Set point, Differential adjustment, Deviation alarms
SYM	Symbol Factory Library for Mimics images

Code	Specifications
Optional Software Modules	
TB+	MicroScan Tool Box Data transfer, mathematical formulas, time clocks, step controller, recipes, data base and remote editor
PLC	PLC Interface – specify PLC make and model to confirm
Network Drivers:	
P1	Active PC will support 1 Passive PC
P2	Active PC will support 2 Passive PC's
P3	Active PC will support 3 Passive PC's
P4	Active PC will support 4 Passive PC's
P5	Active PC will support 5 Passive PC's
P6+	Active PC will support 6 Passive PC's
V4 to V5	**Version Upgrades** (Example from V4 to V5) Price = 35% of the equivalent V5 list price including all modules Plus New dongle or License as per below
Package-Upgrade	**Moving to a larger package and/or modules combination** Price is the dollar difference between packages plus a new Dongle or License Key. Also if increasing modules.
USB Dongle	**USB Dongle, Includes license key** Notes: Old Sentinel-C dongles are now redundant and must be returned to Intech Software Locking is NOT available!
License	**New MicroScan License Key** Charge for issuing new license key (License only, no dongle)

See also the **Z-2400 Series – MicroScan Wireless Data Links - ZigBee®** on page 151.
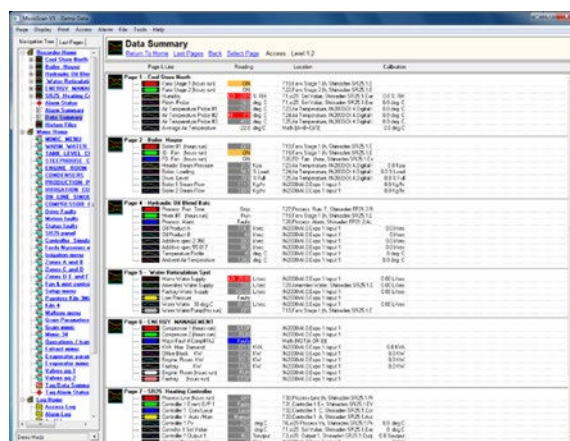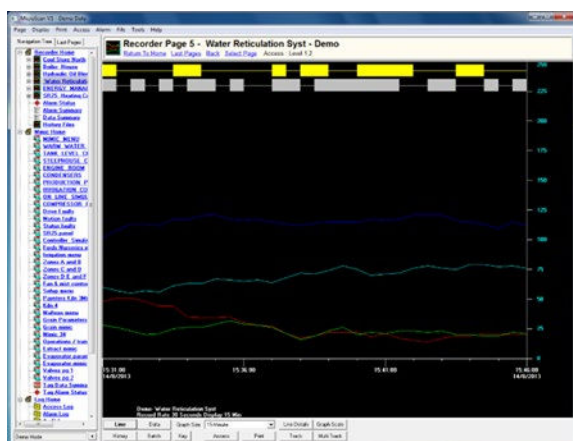
Recorder Module

Mimic Module

Active PC

USB/RS232

RS422/RS485

Server

Remote
Stations or
PLC's

MicroScan Tool Box Setup Manager

File   Edit   Help

MicroScan Tool Box Setup Manager

Tasks | Templates | Program Options | Passwords | Lists

MicroScan Tool Box Module

PLC Interface Module

Passive PC's

USB Dongle

Network Drivers
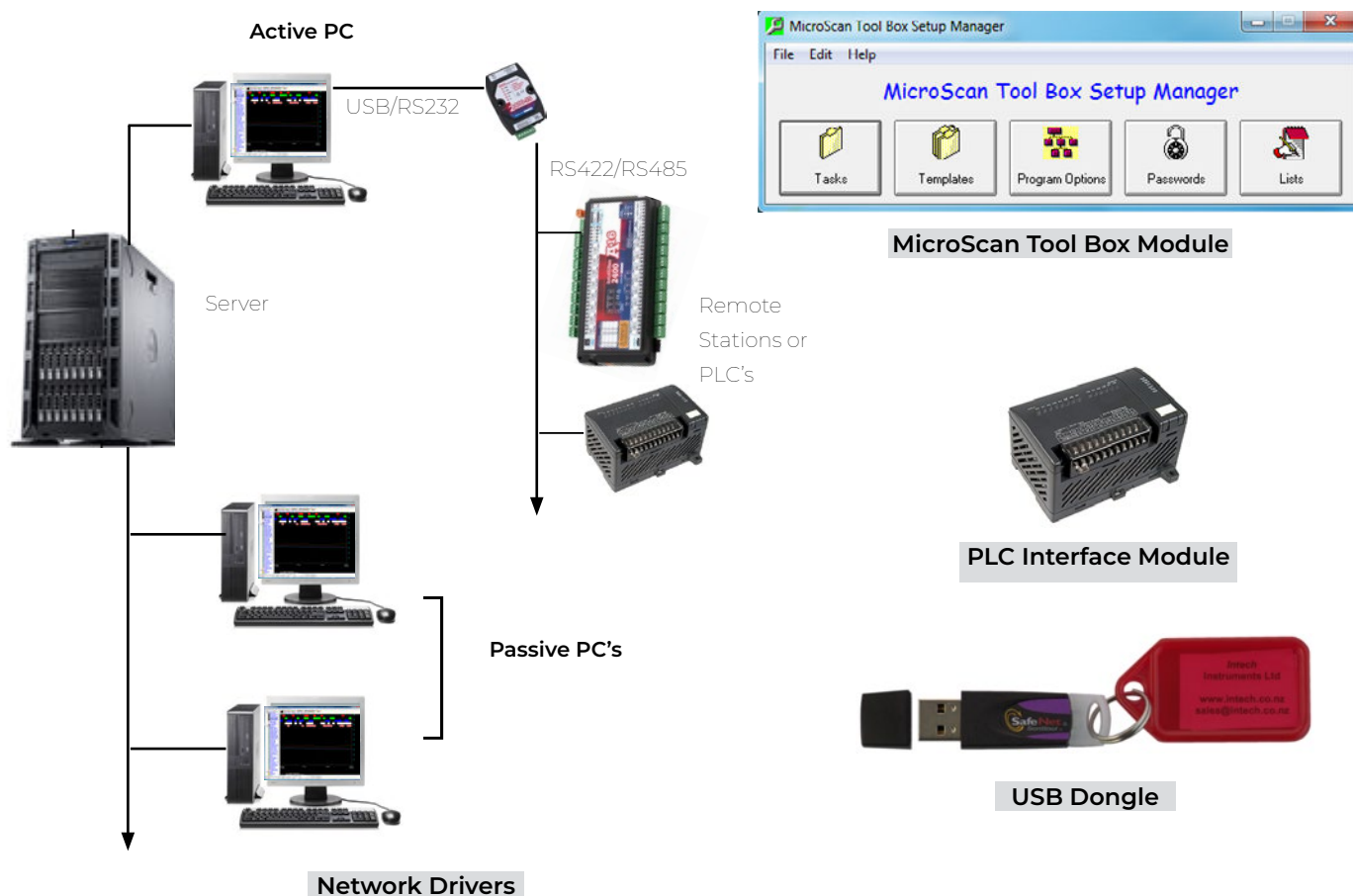
MicroScan Cloud

MicroScan SCADA and Cloud Based Monitoring System

Now you can have your current and historical MicroScan data on all your portable devices. The secure and professional web interface is managed by eze System, with multiple servers located in three geographically separate data centres worldwide, so your data is safe and accessible from anywhere in the world.

The MicroScan Cloud system is designed to be easy to deploy and can be used for anything from a single temperature probe, to a multiple combination system. Monitor, log, alarm, control and automate, all in a single integrated system via a web browser. Alarms: Text (SMS), email, voice and alarm relay.

MicroScan Recorder / SCADA

Internet

eze SCADA
servers

Internet

2400-A16
Remote Station
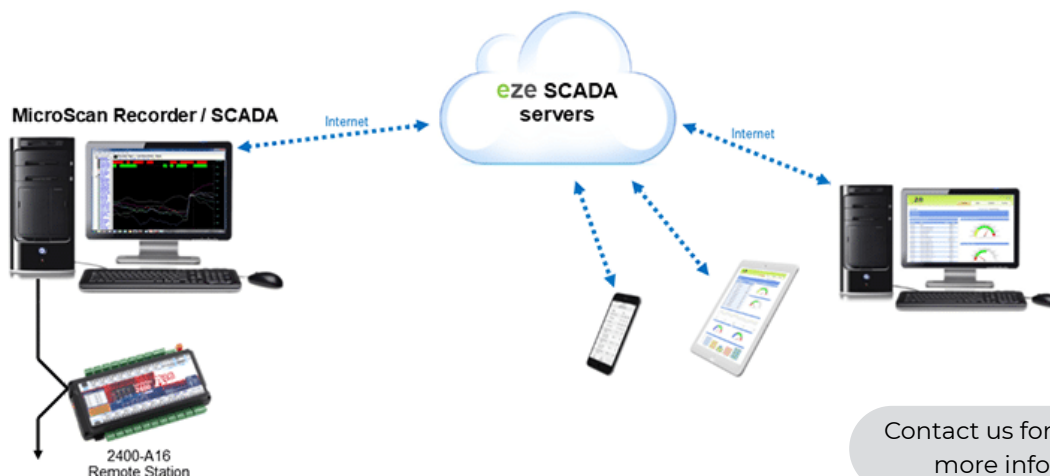
Contact us for pricing and
more information

COMMUNICATION CONVERTERS

2400-IS

Isolated Auto-Detecting USB/RS232 to RS485/422/232 Converter

- The 2400-IS converts and Isolates USB/RS232 from a computer to RS485/422/232 (Auto-Detecting) for communication to data highway stations
- Complete with USB cable (length = 1m) & RS232 cable (length = 2m)
- Powered via computer USB port
- Fully compatible with USB 2.0
- Supports multiple baud rates
- Supports using RS485 field stations / controllers on an existing RS422 data hi-way
- Stylish compact desktop case

Code	Specifications
2400-IS	Isolated Auto-Detecting USB/RS232 to RS485/RS422/RS232 Converter

2100-IS-USB

Isolating USB to RS422/RS485 Converter

- The 2100-IS-USB converts and isolates USB from a computer to RS485 or RS422 for communication to data high-way stations
- Desktop module, complete with serial cable and power cord
- Audible and relay alarms for communication failure with selectable alarm time delays
- Radio modem compatible
- Comms baud rate: 9600 (default): 19200, 4800 (optional)
- Relay output: 1 relay, change over. Rating, 1 amp, 24Vdc
- Power supply: 9V plug pack (supplied with 2100-IS-USB)
- With built-in watchdog comms fail alarm

Code	Specifications
2100-IS-USB	Isolating USB to RS422/RS485 Converter

2100-NET

Isolated Auto-Detecting USB/RS232 to RS485/422/232 Converter

- The 2100-NET brings the convenience of the Ethernet to the MicroScan system, allowing single or groups of remote stations to connect to the plants common Ethernet TCP/IP network. Multiple MicroScan PC's can request data directly from the same stations
- Comms baud rate: RS485/422/232 (Software Selectable) 19200, 9600, 4800
- Power supply: 85~264Vac/dc: 50/60Hz: 10VA, or 23~90Vdc: 10VA (selectable)

Note: The 2100-NET is used with the **2400/2100 series** I/O Remote Stations and Shimaden Controllers when connecting via Ethernet TCP/IP

Code	Specifications
2100-NET	Ethernet TCP/IP to serial Isolating Converter

2300-NET

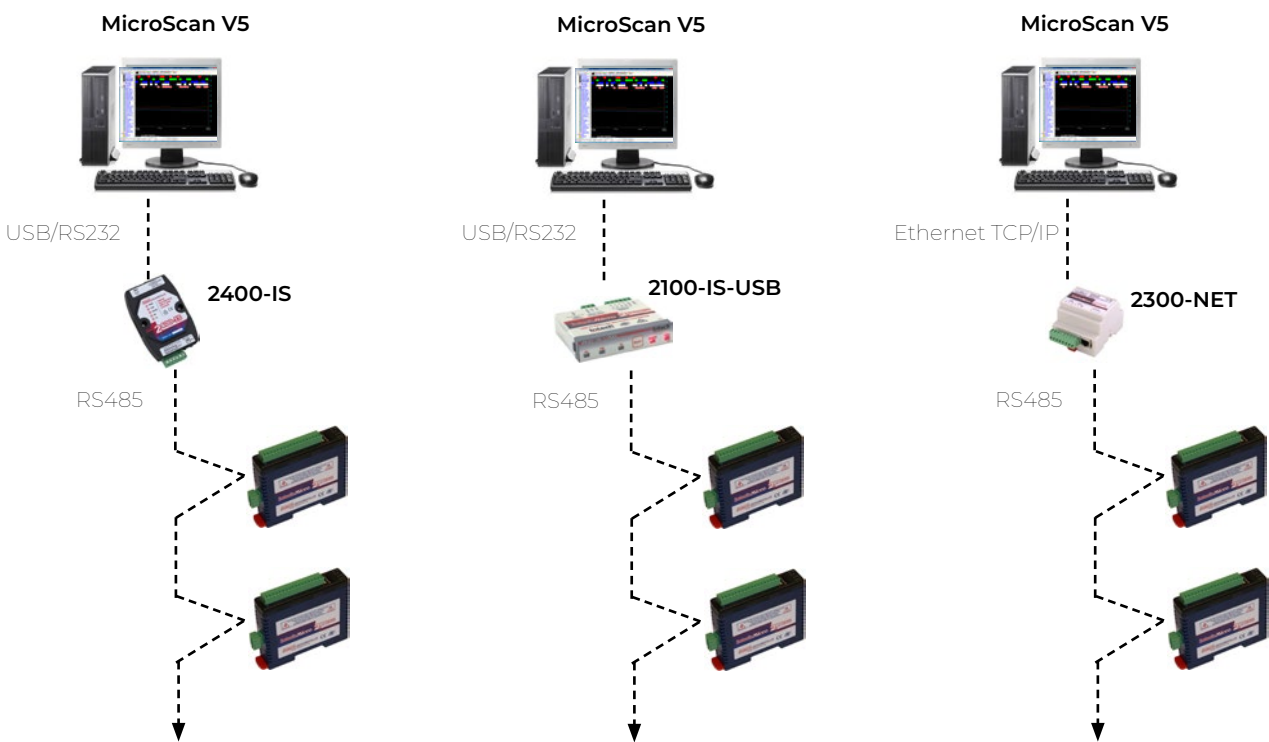## Ethernet TCP/IP to RS485 Isolating Converter

- The 2300-NET converts Ethernet TCP/IP to RS485 for communication to the 2300-XX series stations
- Comms baud rate: 9600
- Power supply: 24Vdc
- Modbus TCP to Modbus RTU Protocol
- Compact DIN rail mount enclosure

Note: The 2300-NET is used with the 2300 series I/O Remote Stations for connecting via Ethernet TCP/IP.
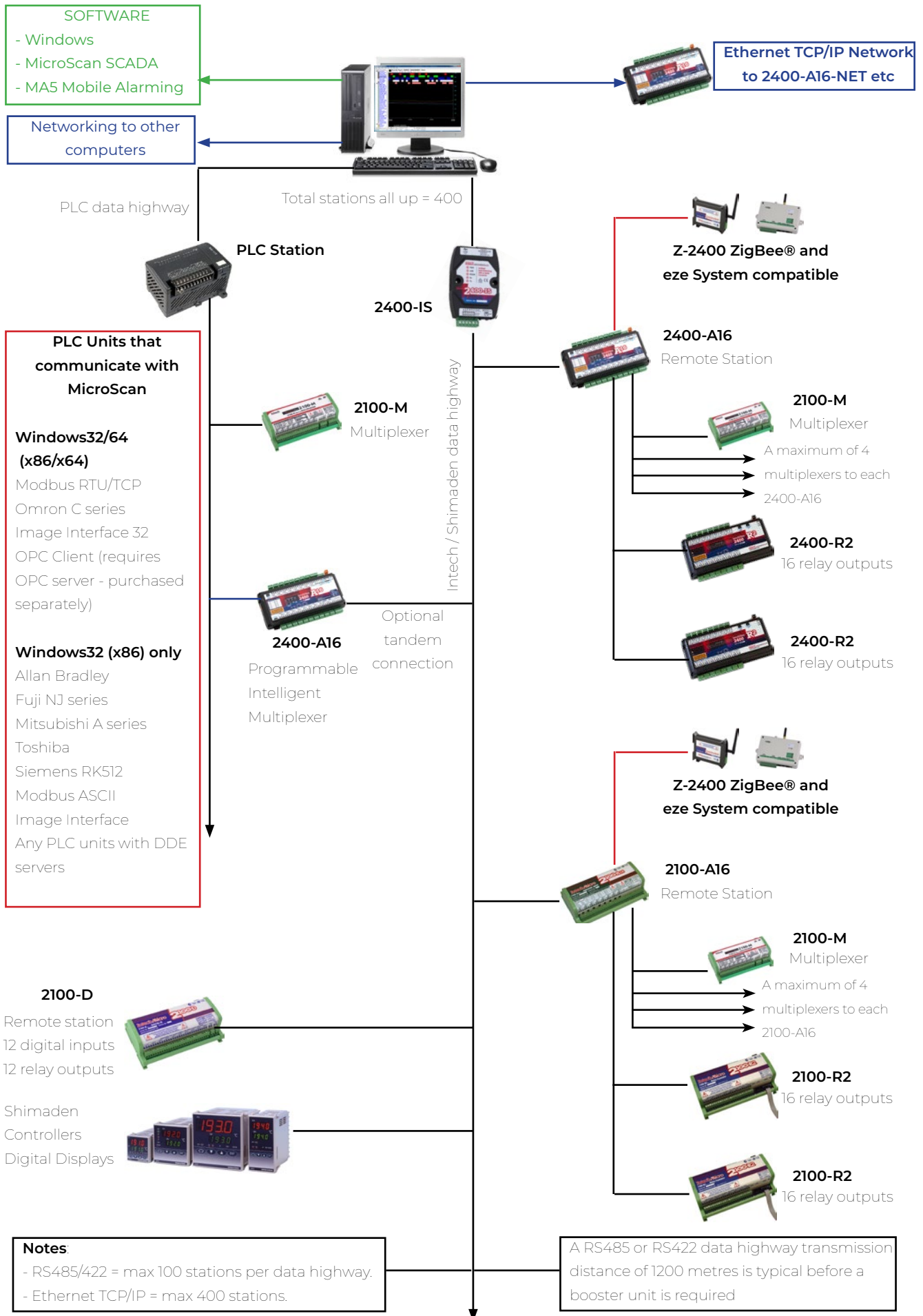For the 2400/2100 series I/O Remote Stations and Shimaden Controllers via Ethernet TCP/IP use the 2100-NET (page 144)

Code	Specifications
2300-NET	Ethernet TCP/IP to RS485 Isolating Converter

Examples of connectivity - RS485 data Hi-way - Intech Micro 2300 Series

MicroScan V5	MicroScan V5	MicroScan V5

USB/RS232   USB/RS232   Ethernet TCP/IP

2400-IS   **2100-IS-USB**   **2300-NET**

RS485   RS485   RS485

Important: The 2300-XX stations cannot share a data hi-way with the 2400-XX / 2100-XX stations and/or Shimaden Controllers

Intech Micro I/O Stations - Schematic Layout

SOFTWARE
- Windows
- MicroScan SCADA
- MA5 Mobile Alarming

Networking to other computers

Ethernet TCP/IP Network to 2400-A16-NET etc

PLC data highway

Total stations all up = 400

PLC Station

2400-IS

Z-2400 ZigBee® and eze System compatible

2400-A16
Remote Station

PLC Units that communicate with MicroScan

Windows32/64 (x86/x64)
Modbus RTU/TCP
Omron C series
Image Interface 32
OPC Client (requires OPC server - purchased separately)

Windows32 (x86) only
Allan Bradley
Fuji NJ series
Mitsubishi A series
Toshiba
Siemens RK512
Modbus ASCII
Image Interface
Any PLC units with DDE servers

2100-M
Multiplexer

2100-M
Multiplexer
A maximum of 4 multiplexers to each 2400-A16

2400-R2
16 relay outputs

2400-R2
16 relay outputs

Intech / Shimaden data highway

2400-A16
Programmable Intelligent Multiplexer

Optional tandem connection

Z-2400 ZigBee® and eze System compatible

2100-A16
Remote Station

2100-M
Multiplexer
A maximum of 4 multiplexers to each 2100-A16

2100-D
Remote station
12 digital inputs
12 relay outputs

2100-R2
16 relay outputs

Shimaden Controllers Digital Displays

2100-R2
16 relay outputs

Notes:
- RS485/422 = max 100 stations per data highway.
- Ethernet TCP/IP = max 400 stations.

A RS485 or RS422 data highway transmission distance of 1200 metres is typical before a booster unit is required

Mini Packs

Convenient Hardware and Software Packages

Code	Specifications
Minipack-8-1	MINI PACK 8: 1 x MicroScan V5 Recorder R8 1 x 2400-IS Comms Converter 1 x 2300-RTD6 RTD Remote Station 1 x PSW-10-F Power Supply
Minipack-8-2	MINI PACK 8 1 x MicroScan V5 Recorder R8 1 x 2400-IS Comms Converter 1 x 2300 Remote Station (specify) 1 x PSW-10-F Power Supply

Code	Specifications
Minipack-16	MINI PACK 16 1 x MicroScan V5 Recorder R16 1 x 2400-IS Comms Converter 1 x 2400-A16-I16 Remote Station

Code	Specifications
Minipack-32	MINI PACK 32 1 x MicroScan V5 Recorder R32 1 x 2400-IS Comms Converter 2 x 2400-A16-I16 Remote Stations

Eze System

eze System

Cloud Based Monitoring System

- Four onboard inputs per ezeio controller
- Expansion options for up to 40 inputs per ezeio controller
- Input types: 0~10Vdc, 0~5Vdc, 4~20mA, Resistive or Pulse
- 2 relay outputs, for control or alarm functions
- Input expansion, supports Intech Micro Remote Stations: **2400-A16, 2300 Series** and **2100-A16**
- Output expansion, up to two 16x relay **2400-R2** units (connected to 2400-A16). Or use the 4x relay **2300-RO4**
- Comms – Ethernet TCP/IP standard. GSM/M2M optional
- Alarms: Text messages (SMS) / Voice messages / E-mail / Local alarm relay output.

- No loss of data during Internet outages
- Secure Web interface via https://ezecontrol.com
- View SCADA screens anywhere
- Set alarms
- Multi user
- Download data sets
- Visual gauges
- Password protection
- Access from any location worldwide
- All configuration via the web
- Easy to install and low cost

ezeio-STD

ezeio-GSM

Service Options

5 Inputs are logged	15 Inputs are logged	40 Inputs are logged
60s minimum log interval	30s minimum log interval	10s minimum log interval
6 months history	13 months history	37 months history
10 SMS/Voice alerts	50 SMS/Voice alerts	100 SMS/Voice alerts
Unlimited email alerts	Unlimited email alerts	Unlimited email alerts
Unlimited reports	Unlimited reports	Unlimited reports

Available for 6 Months, 1 Year, 3 Year and Lifetime options.

Code	Specifications
Ezeio STD	Ezeio Controller c/w Ethernet. ** Comes with a limited, free service period
Ezeio GSM-S	Ezeio Controller GSM/3G (850MHz) +RF - M2M
Eze M2M	M2M SIM card and 12 month M2M Plan for GSM eze
Eze M2M-Data	Ongoing Data costs per year on M2M card
Eze Cable-485	Eze Cable RS485 (1m), if using ezeio with an Intech Remote Station
Eze Fee	EZE Setup Fee for 8 Inputs or less
Eze Fee +	EZE Setup Fee for more than 8 Inputs
Support	Pre-commission and Remote/Onsite Commissioning/Support (per hour). (Plus travel and accommodation where applicable)

Eze System - mkII

eze System

ezeio® mkII Hardware, Cloud Software and User Interface

Monitor, control, automate and consolidate any type of remote industrial devices, equipment & systems. From connecting sensors to automating applications.

ezeio-mkII

Combining all hardware & firmware components needed for making IoT work. 100% remotely managed, configured & synchronized. The 5-in-1 hardware controller:

- Input/Output Unit
- Data Logger
- Modem (LTE Cat M1) & Gateway
- PLC (edge processing)
- 8 configurable inputs on board, plus external expansion using the 2400-A16 plus the 2300 series.

The ezeio® Cloud is a highly optimized solution for the automated synchronization of the entire deployed ezeio® Hardware units. It's the core architecture which make the system highly secure, fully redundant and greatly scalable from one user with a single ezeio® to enterprise level deployments with thousands of field devices and users.

The eze.io User Interface is the single hub for all of the users technical and managerial needs. Any number of ezeio® Hardware units can be accessed by as many users as needed.

- Account Management
- Configuration Management
- Scripting Editor
- Live status
- Dashboards
- Alarms & Notifications
- Timers & Schedules
- Mapping & Geofencing

Code	Specifications
Ezeio mkII KIT	Ezeio mkII Controller Kit complete with antenna, bracket and wall adapter
Activation Cost:	
Pre-setup	Pre-configuration set up for either service below:
STANDARD	Initial setup, Includes 1000 SMS, 1 years Subscription and 10 min logging frequency *
STANDARD + I/O Expansion	Initial setup, includes 1000 SMS, 1 years Subscription, I/O Expansion Driver package (when being used with our 2400-A16 or 2300 series) and 10 min logging frequency*
Add on Options:	
API	1 million, no expiry (Shared across all controllers on the account)
SMS	Extra 1000 SMS, if customer runs out of SMS within the year. The SMS do not expire (Shared across all controllers on the account).
Subscription	Yearly subscription per controller
Support	Pre-commission and Remote/Onsite Commissioning/Support (per hour). (Plus travel and accommodation where applicable)

WIRELESS ANALOGUE BRIDGE TRANSMITTERS

Z-2400-A2 Series

Wireless Data Links using ZigBee® for Analogue and Digital Interface

Ideal for wireless monitoring and/or remote control solutions.

The Intech Z-2400-A2 devices are integrated with ZigBee® technology to form a mesh network between nodes. This technique allows the range of an individual node to be expanded and multiplied, covering a much larger area.

Features
- Communicates analogue and digital signals via a wireless link
- No computer required (once units are programmed)
- Multiple repeater units can be added to extend the wireless range

The XU-USB is required for programming the Z-2400-A2 series using **uP configure** Programming Software.

XU-USB

The Z-2400-A2I can also be used with the **Z-2400 Series** as part of a MicroScan SCADA Wireless system. See page 141.

Code	Specifications
Z-2400-A2IO KIT	**Wireless Input/Output Pair Kit** The Z-2400-A2IO is the kit set of the Input (Z-2400-A2I) and Output (Z-2400-A2O) wireless nodes, supplied as a complete set paired to each other with a unique mesh ID.
Z-2400-A2I	**Wireless Analogue/Pulse Input Unit (P2P Mode)** The Z-2400-A2I is a 2 channel analogue input wireless node, when switched on it looks for the output node to send its input values to via the wireless link. The inputs are individually programmable as follows: • RTD: Pt100/Pt1000, -200~800°C • Thermocouple: B, E, K, J, N, R, S, T, with CJC • mA: 0~20mA (4~20mA) • mV: -25~25mV to -200~1000mV • V: 0~1V to 0~18V • Pulse/Digital Max speed 1Hz It also comes equipped with 4 digital inputs, 2 digital outputs and 2 relay outputs.
Z-2400-A2O	**Wireless Analogue/Pulse Output Unit (P2P Mode)** The Z-2400-A2O is a 2 channel analogue output wireless node. It acts as the base. Like the input node, it comes equipped with the matching 4 digital inputs and 4 digital/relay outputs. The analogue output is 4~20mA only at 24Vdc.
Z-2400-A2R	**Repeater Unit for Wireless Expansion** The Z-2400-A2R is quite simply a ZigBee wireless repeater. It is used to boost the signal strength between the other two nodes, input and output, to extend the range. The maximum number of repeater nodes per wireless mesh network is 15.
XU-USB	USB Programming key
PSW-10-F	Instrument Power Supply, Output Voltage: 24Vdc, 1.0A

Z-2400 Series

MicroScan Wireless Data Links - ZigBee®

ZigBee® is a new technology designed for short range mesh networking that allows easy expansion. Ideal for sites where wireless is preferred over cable connections. Applications: Hospitals, Labs, Blood banks and Industry.

Features
- Integrated with ZigBee® technology to form a mesh network between all Z-2400 nodes
- Communicates data signals via a wireless network
- Secure networking
- Low power consumption

Common Specifications:
- Wireless standard: IEEE 802.15.4-2006
- Wireless range: 100m typical line of sight with included whip
- Wireless Frequency: 2405~2485MHz
- Frequency Hopping: 15 Channels
- Power supply: 9~36Vdc
- Power Consumption: 5 VA

Code	Specifications
Z-2400-RB-T	**Base or Remote Turbo Module** Communications: RS232, RS422, RS485. Duty: Configurable as Base or Remote Embedded protocol support: MicroScan ASCII. Wireless Power: 100mW Plug pack power supply included
Z-2400-TCP-T	**Ethernet Base Turbo Module** Communications: Ethernet TCP/IP. Duty: Base only Embedded protocol support: MicroScan TCP. Wireless Power: 100mW Plug pack power supply included
Z-2400-A2I	**Input Module.** (MicroScan mode) Universal channel data inputs: 2x RTD/Tc/mV/V/mA/Pseudo Digital Digital inputs: 4x 0~1Hz. Wireless Power: 100mW Digital outputs: 2x 30Vdc, 1A max Relay outputs: 2x 250Vac/30Vdc, 5A max
Z-2400-Sleeper	**Sleeper Module** - Battery Powered Universal channel data inputs: 2x RTD/Tc/mV/V/mA/Pseudo Digital Selectable update rate: 1, 2, 5, 15, 30, 60 minutes Wireless Power:1mW Embedded protocol support: MicroScan ASCII Battery life: Approx 2 years life when wake up interval set to 2 minutes. Note: Poor signal strength reduces battery life. Option to connect 12Vdc power supply.
Z-2400-T Powered Sleeper	**Sleeper Turbo Module** Universal channel data inputs: 2x RTD/Tc/mV/V/mA/Pseudo Digital Selectable update rate: 1, 2, 5, 15, 30, 60 minutes Wireless Power:100mW Embedded protocol support: MicroScan ASCII Internal battery for intermittent mains power failure. Battery life: Approx 2 months of intermittent use. (Must be permanently powered - plug pack power supply - included)
Accessories	
Z-2400-BAT	Replacement battery for Z-2400-Sleeper
XU-USB	USB Programming key
EZE-PS	Power Supply 12W 15V
PSW-10-F	Instrument Power Supply, Output Voltage: 24Vdc, 1.0A

Example Schematic

Example schematic showing MicroScan Software and the 2400-A16 Remote Station plus Sleeper for mobile monitoring:

MicroScan Recorder / SCADA

Ethernet   **Network Switch Hub**   Ethernet

Z-2400-TCP-T
Ethernet Base Module

Z-2400-RB-T
Remote Module

Z-2400-A2I
Input Module

LPN-H-W

2400-A16 Remote Station

Shimaden

Z-2400-Sleeper

Temperature Probes

Allows monitoring of mobile equipment
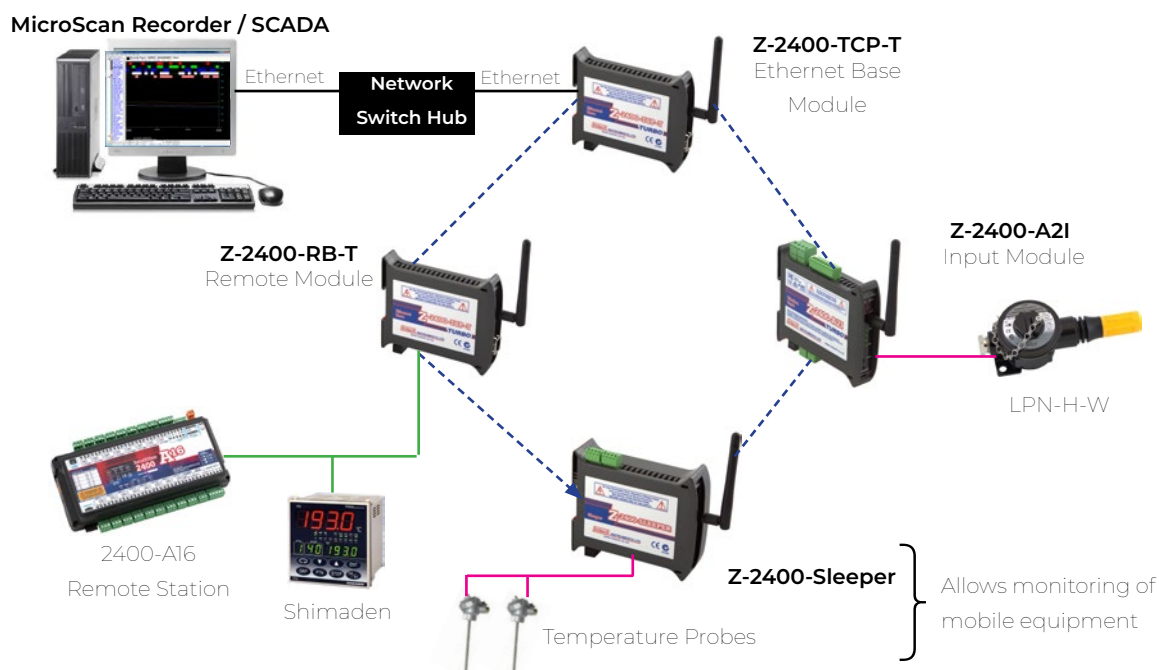
Z-2400-A2 Antennas

Zigbee ® Antennas 2.4GHz for Z-2400-A2 Series

Features
- Used when greater distances are involved
- Indoor and outdoor Antenna types available
- Directional and Omni directional antennas
- Easy to install

ZB-ANT-02   ZB-ANT-08   ZB-ANT-19

Code	Specifications
ZB-ANT-02	Antenna 2.4GHz 2.2dBi Rubber Duck
ZB-ANT-05	Antenna 2.4GHz 5.5dBi Rubber Duck Indoor Only
ZB-ANT-08	Antenna 2.4GHz 8dBi Monopole
ZB-ANT-14	Antenna 2.4GHz 14.5dBi Yagi
ZB-ANT-19	Antenna 2.4GHz 19dBi Parabolic

DIGI485

Communication modules for RS485/422 - Digi® Radio Modems

The Digi® Radio Modems are used for long-range, low speed wireless communications. Powered by DigiMesh® networking protocol, featuring dense network operation using mesh technology with frequency hopping spread spectrum capability.

Operating in the 900MHz license-free ISM band (Industrial, Scientific and Medical bands), the Digi Radio Modems can wirelessly connect a variety of Intech RS485/422 devices across many applications including remote monitoring.

Features
- Wireless communications for RS485/422 devices
- Easy to use, no configuration required
- True peer-to-peer communications (no "master" required)
- Mesh, point-to-point and point-to-multipoint topologies supported
- Operates on the license-free 900MHz ISM band (Industrial, Scientific and Medical)
- LED's on the front to indicate the wireless signal quality

Code	Specifications
DIGI485	Digi Radio Modem for RS485/422

Example of Digi Radio Modem Connections
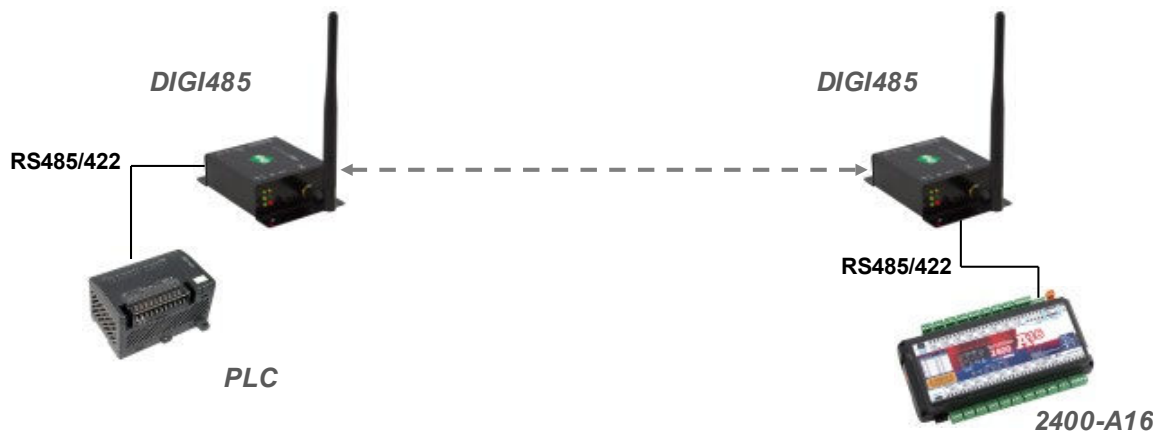
HR SERIES - STAINLESS STEEL DATA LOGGERS

GP-HR

General Purpose Data logger - 4 Inputs

The GP-HR is a small High Resolution (12 bit) multi purpose data logger housed in a rugged 20mm 304 stainless steel case, that can be configured to accept any (up to four) of the following inputs:

Three analogue input channels, any to log:

- Temperature
- Humidity
- Pressure
- Light
- Voltage (DC)
- Current (DC) including 4~20mA
- Wind Direction

One Digital pulse input channel, to log:

- Rainfall
- Wind Speed
- Flow
- Counter (up to 65535)
- Frequency (up to 60kHz)

The GP-HR has 3 Analogue inputs (individually configurable using **Omni7 Software**) and 1 Digital pulse input channel. It also has an internal temperature sensor for convenient logging of ambient temperature if desired. Logging can be configured to: start on time, immediate start, stop when full, loop around (overwrite oldest data).

The GP-HR (mark 4) features a storage capacity of over 1,000,000 8bit samples; or over 500,000 12bit samples, as well as a user replaceable battery!

GP-HR with mA3+P-PS

GP-HR with Pt3-PS

Code	Specifications
GP-HR	GP-HR General Purpose Data Loggger
Sensors and Plug Sets for GP-HR	
mA1-PS	One 4~20mA or 0~20mA input
mA3+P-PS	Three 4~20mA or 0~20mA inputs c/w One Pulse input
R-PS	One Slow Pulse for Rain Gauge input
P300-HR-PS	Pressure sensor. Range = -15~300psi (Overload 600psi, Burst 1500psi), 1500mm cable, 1/8"NPT.
P100-HR-PS	Pressure sensor. Range = -15~100psi (Overload 200psi, Burst 500psi), 1500mm cable, 1/8"NPT.
Pt3-PS	Three RTD Pt1000 Temperature Probes. 4mmø x 140mm, 2m long. Range -50~130°C Note: GP-HR maximum RTD Pt1000 temperature range is -100~400°C - Other available on request
L-PS	Light Energy cable
##VD3-PS	Three DC voltage inputs. ## = Specify voltage up to 32Vdc. (Maximum voltage input for the GP-HR is 32Vdc (32VD3-PS) – for voltages >32Vdc use an intermediary transmitter like the PI-D)
ACM-Ma2-PS	Flow metering off the pump run contact plus two 4~20mA inputs
FLOW-mA2-PS	Coil or open collector plus two 4~20mA inputs
DLC3USB	USB Download Cable HR Series

HT-HR

Humidity & Temperature Data Logger

- Temperature & Humidity can be set to any combination of Point, Average, Maximum & Minimum readings
- The data from any logger that records Temperature and Relative Humidity can be processed, by the Omni7 software, to add Absolute Humidity and/or Dew Point readings to the data.
- The logger can be set to log Humidity only, Temperature only or both Humidity and Temperature
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now" or started at a given time in the future
- The data from any logger that records Temperature can be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops

Code	Specifications
HT-HR	Humidity & Temperature Data Logger, Range -30~70°C
DLC3USB	USB Download Cable HR Series

Tc-HR

Thermocouple Temperature Data Logger

Tc-HR with Probe

- Over 500,000 samples can be logged (when logging thermocouple only)
- The logger accepts Type J, K, N, R and T thermocouple probes (factory set to Type K)
- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now", started at a given time in the future or on a condition (e.g. temperature >20°C)
- The data from any logger that records Temperature can be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops

Code	Specifications
Tc-HR	Dual Temperature, Thermocouple Datalogger, Range -30~70°C (Does not include Thermocouple probe)
Options:	
HHT-03	3.2mm x 100mm, Type K, 900mm PVC, SS, -30~300°C, Mini-spear probe
Tc-HR Plug Set	70mm lead (Specify thermocouple type), includes Switchcraft plug (logger end) and Mini jack (connects to T/c Mini plug)
DLC3USB	USB Download Cable HR Series

T-HR

Single Temperature Data Logger

- Over 500,000 samples can be logged
- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- Logging can be configured to: start on time, immediate start, stop when full, loop around (overwrite oldest data)
- The data from any logger that records Temperature can be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops

Code	Specifications
T-HR	Single Temperature Data Logger, Range -30~70°C
DLC3USB	USB Download Cable HR Series

Pt-HR

External RTD Temperature Data Logger

Pt-HR with TP-Pt100

- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- Both the RTD and Internal Temperatures can be logged, or one Temperature only
- Logging can be configured to: start on time, immediate start, stop when full, loop around (overwrite oldest data)
- The data from any logger that records Temperature can now be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops.

Code	Specifications
Pt-HR	External RTD Pt100/Pt500/Pt1000 Temperature Data Logger, Range -30~70°C
Options	
TP-Pt100	RTD Pt100 temperature probe for Pt-HR, range -100~150°C
DLC3USB	USB Download Cable HR Series

mV-HR

milliVolt Data Logger

mV-HR with Test Lead

- milliVoltage and Temperature can be set to any combination of Point, Average, Maximum & Minimum readings.
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time.
- The logger can be started "Now" or started at a given time in the future.

Code	Specifications
mV-HR	milliVolt Data Logger ±50mV / ±100mV / ±200mV / ±400mV
Options	
mV-HR Lead	Test Lead set for mV-HR logger
DLC3USB	USB Download Cable HR Series

pH-HR

pH & Temperature Data Logger

pH-HR with pH Probe

- Over 500,000 samples can be logged (when logging pH only)
- pH and Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now", started at a given time in the future or on a condition (e.g. pH > 6.2pH)
- The data from any logger that records Temperature can now be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops

Code	Specifications
pH-HR	External RTD Pt100/Pt500/Pt1000 Temperature data logger
Options	
pH-HR-Plug Set	Fit plug set to pH sensor for use with pH-HR logger
DLC3USB	USB Download Cable HR Series

WT-HR

Water Level & Temperature Data Logger

- Temperature can be set to any combination of Point, Average, Maximum & minimum readings
- Temperature can be logged in high resolution or low resolution mode

- Low resolution mode is used to increase the number of samples
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now" or started at a given time in the future

Code	Specifications
WT-HR-250	Water Level & Temperature Data Logger 0~0.25m
WT-HR-500	Water Level & Temperature Data Logger 0~0.5m
WT-HR-1000	Water Level & Temperature Data Logger 0~1.0m
WT-HR-1500	Water Level & Temperature Data Logger 0~1.5m
WT-HR-2000	Water Level & Temperature Data Logger 0~2.0m
Options	
DLC3USB	USB Download Cable HR Series

LCD SERIES - LCD DISPLAY DATA LOGGERS

HT-LCD

Humidity & Temperature Data Logger

- Storage capacity of over 500,000 samples
- Easy to use LCD menu options
- LCD display shows logger status and alarm status continuously
- The data from any logger that records Temperature and Relative Humidity can be processed, by the Omni7 software, to add Absolute Humidity and/or Dew Point readings to the data
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now", at a given time in the future, on a condition (e.g. temperature >20°C), or on Trigger (push button on logger)
- The data from any logger that records Temperature can now be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops

Code	Specifications
HT-LCD	Humidity & Temperature LCD Data Logger
DLC8USB	USB Download Cable LCD Series

THT-LCD

Humidity and Dual Temperature Data Logger

- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings.
- The data from any logger that records Temperature and Relative Humidity can be processed, by the Omni7 software, to add Absolute Humidity and/or Dew Point readings to the data.
- The battery voltage of the logger can be logged if required.
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time.
- The logger can be started "Now" or started at a given time in the future

THT-LCD with HT-11

Code	Specifications
THT-LCD	Humidity & Dual Temperature LCD Data Logger (includes HT-11 probe)
DLC8USB	USB Download Cable LCD Series

Tc-LCD

Humidity & Temperature Data Logger

- Universal miniature thermocouple connector socket can be used to connect type J, K, N, R and T thermocouples (factory set to type K)
- Storage capacity of over 500,000 samples
- Easy to use LCD menu options
- LCD display shows logger status and alarm status continuously
- LCD display can be set to show; thermocouple temperature, internal temperature, battery voltage, number of logged samples and alarm status.
- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now", at a given time in the future, on a condition (e.g. temperature >20°C) or on Trigger (push button on logger)

Code	Specifications
Tc-LCD	Thermocouple Temperature LCD Data Logger Accepts Type J,K,N,R and T probes via Universal plug (Does not include Thermocouple probe)
Options:	
HHT-03	Type K temperature probe for Tc-LCD. Range -30~300°C. Spear Probe 2m pvc cable with handle & mini plug
DLC8USB	USB Download Cable LCD Series

Pt-LCD

RTD Temperature Data Logger

- 6 pin Connector Socket can be used to connect to 2 wire, 3 wire and 4 wire RTD Pt100, Pt500 and Pt1000 temperature probes
- Storage capacity of over 500,000 samples
- Easy to use LCD menu options
- LCD display shows logger status and alarm status continuously
- LCD display can be set to show; RTD temperature, internal temperature,
- battery voltage, number of logged samples and alarm status
- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings
- The battery voltage of the logger can be logged if required
- The logger can be run in either "Stop when memory is Full", "Loop Around" mode or set to stop at a future time
- The logger can be started "Now", at a given time in the future, on a condition (e.g. temperature >20°C) or on Trigger (push button on logger)

Code	Specifications
Pt-LCD	LCD RTD (Pt100, Pt500 & Pt1000) Temperature Data Logger. (Does not include RTD probe)
Options	
TP-Pt100-LCD	RTD Pt100 temperature probe for Pt-LCD, range -100~150°C, 4.7 x 100mm SS probe with 2m tefzel cable
DLC8USB	USB Download Cable LCD Series

INSTALLED DATA LOGGERS

GP-MC

Multi Purpose Data logger

The GP-MC is a high resolution (12 bit) multi purpose data logger with eight analogue and two digital pulse inputs. It also provides a Start on Trigger input and two alarm outputs. The GP-MC can be supplied in an optional seahorse IP66 Weatherproof enclosure if required. It can be configured to accept input from a wide variety of sources including:

- 4~20mA Probes
- Voltage (DC)
- Current (DC)
- Temperature Probes
- Pressure Probes
- Flow Sensors
- Frequency
- Switches
- * Thermocouple * (see below)

- Potentiometers
- Light Sensors
- Leaf Wetness Sensor
- Soil Water Tension Probes
- Wind Speed Probes
- Wind Direction Sensors
- Tipping Bucket Rain Gauges
- Solar Radiation Sensors

The GP-MC also has an internal temperature sensor for convenient logging of ambient temperature if desired.

One to Five year battery life depending on usage as below, user replaceable. Data is retained in the event of battery failure. Battery Status Monitor in Omni7 Software.

- **Warning**: When using the Average, Maximum or Minimum reading(s), the logger reads the attached sensor(s) every second. This will reduce battery life.
- Using the logger in temperatures below -5°C (23°F) will reduce battery life.

A DLC5USB [USB] download cable (2m) is required to connect the GP-MC to a computer.

Code	Specifications
GP-MC	General Purpose Multi Channel data logger
Sensors and Plug Sets for GP-MC:	
mA-MC-PS	One 4~20mA or 0~20mA input
5VD-MC-PS	One 0~5Vdc input
10VD-MC-PS	One 0~10Vdc input. Maximum voltage input for the GP-MC is 32Vdc (32VD-MC-PS) – for voltages >32Vdc use an intermediary transmitter like the PI-D
Pt1000-MC-PS	RTD Pt1000 Temperature Probe, range -50~130°C, 4mmØ x 150mm, 1.8m SSOB cable. Note: GP-MC maximum RTD Pt1000 temperature range is -100~400°C
P100-MC-PS	Pressure sensor. Range = -15~100psi (Overload 200psi, Burst 500psi), 1500mm cable, 1/8"NPT
P300-MC-PS	Pressure sensor. Range = -15~300psi (Overload 600psi, Burst 1500psi), 1500mm cable, 1/8"NPT
Flow-MC-PS	Coil or open collector
ACM-MC-PS	Flow metering off the pump run contact
DLC5USB	USB Download Cable for GP-MC
Omni7	Omni7 Software (Free to download from Intech website)

SOFTWARE & ACCESSORIES

Omni7

Software for Intech Data Loggers
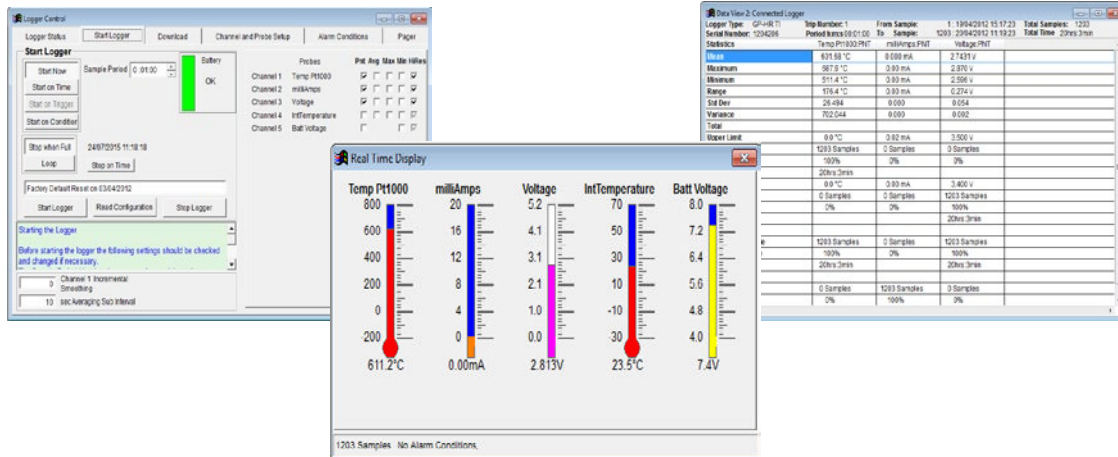
- The Omni7 (OmniLog) Data Management software is an application for reading, displaying, analysing, organising and exporting data that has been downloaded from TruTrack data loggers.
- Data can be read from data loggers or retrieved from previously saved data files.
- A connected data logger can be configured, calibrated, started, read and stopped by this application.
- Data retrieved from data loggers and previously saved data files can be viewed and printed in a values spread sheet list, as a graph or as a statistics report. These values, graphs and statistics can be displayed and printed for all data or from a user selected block of data.
- Data can also be exported in a large range of industry standard formats so as to be used by other applications.
- The data from any logger that records Temperature can now be processed, by the Omni7 software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops.

DLC-#USB

USB Download Cable for Intech Data Loggers

DLC3USB

DLC5USB

DLC8USB

Code	Specifications
DLC3USB	USB Download Cable HR Series
DLC5USB	USB Download Cable for GP-MC
DLC8USB	USB Download Cable LCD Series

HR-MK4

HR Battery Mark 4 for HR Data Logers

Code	Specifications
HR-MK4	Replacement HR Battery Mark 4 for HR Dataloggers
Labour	If you want Intech to fit the battery for you, test and check data logger (Data logger needs to be returned to Intech)

Seahorse

IP66 Weatherproof Enclosure

- The Seahorse Logger Enclosure is a weatherproof lockable equipment housing designed to be mounted on posts or 50mm poles
- Seahorse equipment cases are watertight, airtight, dustproof, crush resistant and designed to keep your logging equipment safe from the elements
- The Seahorse Logger Enclosure is supplied with 2 U bolt clamps for attaching the enclosure to a 50mm outside diameter pipe

Code	Specifications
Seahorse	IP66 Weatherproof Enclosure

AUTOMATION

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7000

Miniature Low Power Totalizing Counter

The 7000 Series are miniature totalizing counters designed for minimal power requirements. They are suitable for either direct PCB mounting or panel mounting and come with a bezel supplied.

These counters use the latest CMOS circuitry to achieve quiescent current consumption of less than 5µA. Available in a bi-directional add/subtract version.

Code	Specifications
7000	Totalizing Counter, 6 Digit LCD

7111

Self-Powered Multifunction AC & DC Totalizers

The 7111/7111HV counter is a compact, self-powered counter with bi-directional counting and screw terminals to ensure fast wiring. Other features include optional backlight, decimal point selection and count direction indication.

The 7111 is a dry contact input counter and the 7111HV is a wide ranging voltage counter.

Code	Specifications
7111	Self-powered totalising counter, 8 digit LCD, Bi-directional: Count up
7111 HV	Totalising Counter, High Voltage, Bi-directional: add/substract

7922/ 7932

Programmable Preset Counter

The 7922/7932 is a programmable preset counter with prescaler, quadrature input and EEPROM data storage. Housed in an IP65 sealed DIN case, this versatile counter can be configured for quadrature or uni-directional inputs, dual preset or single preset with batch preset. The 7922/7932 display is a supertwist high visibility backlit LCD that can be viewed from any angle.

All programming, reset and presetting can be carried out from the counter's front panel and when powered from an AC supply, there is a 12VDC output to drive a sensor.

Code	Specifications
7922	Programmable predetermining Counter/Timer, 6 digit, dual preset
7932	Programmable predetermining Counter/Timer, 6 digit, single preset

9100

trumeter

Programmable, Multi-Preset Totalizer & Rate Meter

The 9100 is a multi-function predetermining counter and rate meter that allows simultaneous operation in different modes. It features an enhanced 3-line display, front panel programming and EEPROM memory.

The 9100 simultaneously carries out batch counting, totalizing and rate measurement. The 3 line Supertwist LCD display is viewable from any angle and the displayed values, choice of engineering units and 12 characters of user programmable text can be printed directly from the printer port.

Code	Specifications
9100	Multi-function Counter / Ratemeter, Multi-preset

TC49

SAINT WIEN

Programmable Digital Counter/Timer

- Digits: 6 digit LED
- Power supply: 110/220Vac
- Sensor power: 12Vdc, 50mA
- Counter   Mode: 7 counting versions
      Reset: External.
      Input: Contact. 30 Hz max. / Solid state. 3k Hz max.
- Timer   Mode: Up
      Reset: External
      Input: Contact
      8 Ranges: From 99H59M59S to 999.999S

Code	Specifications
TC49	Programmable Digital Counter/Timer, 6 digit LED

H7N-6DM

SAINT WIEN

Programmable Digital Counter

- Digits: 6 digit LED. 1 preset
- Power supply: 110/220Vac
- Mode: Up/down/reversible
- Reset: Panel/remote, Auto/man
- Input: Contact. 30 Hz max
      Solid state. 3k Hz max
- Output: Relay SPDT. 3A, 250Vac
- Sensor power: 12Vdc, 50 mA
- Dimensions: 72 x 72mm

Code	Specifications
H7N-6DM	Programmable Digital Counter, 6 digit LED

H7K-52-5U

Programmable Digital Counter

- Digits: 5 digit LED. 1 preset
- Power supply: 220Vac
- Mode: Up count
- Reset: Panel, Auto/man
- Input: Contact. 30 Hz max
    Solid state. 3k Hz max
- Output: Relay SPDT. 3A, 250Vac
- Sensor power: 12Vdc 20mA
- Dimensions: 48 x 48mm

Code	Specifications
H7K-52-5U	Programmable Digital Counter, 5 digit LED, 48 x 48mm

CT1-6D2

Programmable Digital Counter/Timer

- Digits: 6 digit LED. 2 presets
- Power supply: 110/220Vac
- Output: 2 x Relay SPDT. 3A, 250Vac
- Sensor power: 12Vdc, 60mA
- Counter   Mode: Up count
    Reset: External, Auto, Manual
    Pre-scale: 000.000~999.999
    Input: Contact. 30 Hz max./ Solid state. 6~30Vdc. 3k Hz max
- Timer   Mode: On delay
    Reset: External, Auto, Manual
    Input: External gate for timer hold
    Ranges: 4 selectable from 99H59M, 99M59S, 999.9S, 99.99S

Code	Specifications
CT1-6D2	Programmable Digital Counter/Timer, 6 digit LED, 96 x 48mm

CT3-4D2

Programmable Digital Counter/Timer

- Digits: 4 digit LED. 2 presets
- Power supply: 110/220Vac
- Output: 2 x Relay SPDT. 3A, 250Vac
- Sensor power: 12Vdc, 20mA.
- Counter   Mode: Up count
    Reset: External, Auto, Manual
    Pre-scale: 000.000~999.999
    Input: Contact. 30 Hz max. / Solid state. 6~30Vdc. 3k Hz max
- Timer   Mode: On delay
    Reset: External, Auto, Manual
    Input: External gate for timer hold
    Ranges: 4 selectable from 99H59M, 99M59S, 999.9S, 99.99S

Code	Specifications
CT3-4D2	Programmable Digital Counter/Timer, 4 digit, 48 x 48mm

LC8M

Digital Totaliser

- Digits: 8 digit LCD
- Power supply: Battery - 3 year life
- Mode: Up count
- Input: AC Volt / Contact / DC Volt
- Reset: Panel Reset, External reset
- Size: 31 x 56mm

Code	Specifications
LC8MD	Digital Totaliser, 6~30Vdc Input 10Hx Max
LC8MDR	Digital Totaliser, 6~30Vdc Input 10Hx Max with Panel Reset
LC8MCR	Digital Totaliser, Contact / Switch Input 10Hx Max with Panel Reset

TIMERS

7511

trumeter

High Voltage AC & DC Electronic Timers

8-digit liquid crystal display timer, self-powered with a 10 year battery life. A compact LCD timer designed for many applications, screw terminals ensure fast wiring. Features include backlighting (external 5Vdc supply required), 4 timing modes, timing direction indication and 9mm high digits. High Voltage (HV) version accepts input voltages of 5~110Vdc or 10~240Vac.

Code	Specifications
7511	8-digit Self-powered Totalising Timer
7511 HV	8-digit Self-powered Totalising Timer with High Voltage Input

H5K-52-5U

Digital Timer

- Digits: 5 digit LED. 1 preset
- Power supply: 220Vac
- Mode: On delay
- Start/reset: Power on/off
- Input: External gate for timer hold
- Output: Relay SPDT. 3A, 250Vac
- Ranges: 4 selectable from 999.99S, 999M59S, 9H59M59S, 999H59M

Code	Specifications
H5K-52-5U	Digital Timer, Upcount, 5 digit, 50Hz, 220V, 48 x 48mm

H2K

Analogue Timer

- Power supply: 220Vac
- Mode: 1 preset. On delay
- Start/reset: Power on/off
- Ranges: 4 selectable ranges, 6 sec, 60 sec, 6 min, 60 min
- Relay rating: 3A, 250Vac
- Price includes 8 pin base
- Size: 48 x 48mm

Code	Specifications
H2K1	Analogue Timer, timed SPDT
H2K2	Analogue Timer, timed DPDT

H5N-6DM

Programmable Digital Timer

- Digits: 6 digit LED. 1 preset
- Power supply: 110/220Vac
- Timing: Up/down
- Mode: 8 operation modes
- Start/reset: Panel/remote, Auto/man
- Input: External gate for timer hold
- Output: Relay SPDT. 3A, 250Vac
- Ranges: 8 selectable from 99H59M59S to 999.999S

Code	Specifications
H5N-6DM	Programmable Digital Timer, Up/down, 6 digit LED, 110/220Vac, 72 x 72mm

LT8M

Digital Hours Run Meter

- Digits: 8 digit LCD
- Power supply: Battery - 3 year life
- Range: 9999 hours 59 min
- Input: AC Volt / Contact on/off DC Volt
- Reset: Panel Reset, External reset
- Size: 31 x 56mm

Code	Specifications
LT8MA	Digital Hours Run Meter, 80~250Vac Input 10Hx Max
LT8MAR	Digital Hours Run Meter, 80~250Vac Input 10Hx Max with Panel Reset
LT8MC	Digital Hours Run Meter, Contact / Switch on/off Input 10Hx Max
LT8MCR	Digital Hours Run Meter, Contact / Switch on/off Input 10Hx Max with Panel Reset
LT8MD	Digital Hours Run Meter, 6~30Vdc Input 10Hx Max
LT8MDR	Digital Hours Run Meter, 6~30Vdc Input 10Hx Max with Panel Reset

INDUCTIVE PROXIMITY SENSORS

PL Series

SAINT WIEN

Inductive Proximity Sensor with LED indicator (Square Sensors)

- Power supply: 12~24Vdc. 10mA
- Temperature: -20~70°C

Code	Specifications
PL4P	Proximity Sensor, 4mm range, 18 x 18 x L35mm, Output PNP
PL4N	Proximity Sensor, 4mm range, 18 x 18 x L35mm, Output NPN
PLH5P	Proximity Sensor, 5mm range, 18 x 18 x L38mm, Output PNP
PL10P	Proximity Sensor, 10mm range, 30 x 30 x L53mm, Output PNP

PLX Series

SAINT WIEN

Inductive Proximity Sensor with LED indicator (Round Sensors)

- Power supply: 12~24Vdc. 10mA
- Temperature: -20~70°C

Code	Specifications
PLX1204P	Proximity Sensor, 4mm range, 60 x ø12mm, Output PNP
PLX1204N	Proximity Sensor, 4mm range, 60 x ø12mm, Output NPN
PLX5P	Proximity Sensor, 5mm range, 60 x ø18mm, Output PNP
PLX10P	Proximity Sensor, 10mm range, 50 x ø30mm, Output PNP

CAPACITIVE PROXIMITY SENSOR

CPLX10

SAINT WIEN

Capacitive Proximity Sensor with LED Indicator

- Power supply: 12~24Vdc. 20mA
- Temperature: -20~70°C

Code	Specifications
CPLX10P	Proximity Sensor, 30mm range, 85 x ø18mm, Output PNP
CPLX10N	Proximity Sensor, 30mm range, 85 x ø18mm, Output NPN

Rotating Connectors

Rotary Electrical Connectors

Mercotac® Rotary Electrical Connectors operate on a superior principle. They offer an extremely low resistance electrical connection because the electrical conduction path is a liquid metal which is molecularly bonded to the contacts. The Mercotac® connection is constant and unchanged for the life of the rotary electrical connector.

Common Specifications.
- Temperature range: Within 7~60°C
- Voltage range: 0~500Vac/dc
- Mercury contact resistance: 1 milli-ohm Max

Code	Specifications
Two Conductor	
205	Rotating Connector 2 Poles, 4 Amps at 240Vac, RPM: 2000 Max
595	Two contact cap with solder lugs for 205
592	Two contact receptacle with tails for 205
230	Rotating Connector 2 Poles, 30 Amps at 240Vac, RPM: 1800 Max
57230	Boot Kit for dust and splash protection IP51 for 230
Three Conductor	
305	Rotating Connector 3 Poles, 4 Amps at 240Vac, RPM: 1800 Max
330	Rotating Connector 3 Poles, 30 Amps at 240Vac, RPM: 1200 Max
331	Rotating Connector 3 Poles, 2 at 4 Amps at 240Vac, 1 at 30 Amps, RPM: 1800 Max
Four Conductor	
430	Rotating Connector 4 Poles, 2 at 4 Amps at 240Vac, 2 at 30 Amps, RPM: 1200 Max.
57430	Boot Kit for dust and splash protection IP51 for 330/430
50430	Plug Kit (No wires) for 430
50431	Plug assembly (with wires) for 430
435	Rotating Connector 4 Poles, 30 Amps at 500Vac, RPM: 300 Max.
57435	Boot Kit for dust and splash protection IP51 for 435
Six Conductor	
630	Rotating Connector 6 Poles, 2 at 4 Amps at 240Vac, 4 at 30 Amps, RPM: 300 Max.
57630	Boot Kit for dust and splash protection IP51 for 630
Eight Conductor	
830	Rotating Connector 8 Poles, 2 at 4 Amps at 240Vac, 6 at 30 Amps, RMP: 200 Max.
57830	Boot Kit for dust and splash protection IP51 for 830

TEMPERATURE LIMITER / MONITOR

TB/TW

JUMO

Temperature Limiter / Temperature Monitor (701160)

Features:
- Design width 22.5mm
- Installation on a top hat rail 35mm
- Approval as per DIN EN 14 597, cULus
- Universal measuring input (also standard signal)
- 2x Pt100 for differential value measurement (Also available for Thermocouples)
- Alphanumerical LCD display
- Limiter or monitor configurable
- Temperature monitoring up to Max. 2,495°C
- Pre-alarm absolute or as the offset to the limit value
- Internal and external reset possible
- Advanced configuration with optional setup program
- JUMO Datasheet: 701160

Applications:
- Monitoring and limiting temperatures, pressure and other process variables, e.g.:
  - Protection of burner control systems
  - Monitoring of heating elements
  - Protection of thermal oil systems
  - Protection of boiler plants

Code	Specifications
701160-23	TB/TW Temperature Limiter/ Monitor, 110~240Vac
701160-25	TB/TW Temperature Limiter/ Monitor, 20~30Vac/dc
Accessories	
00456352	PC Interface with converter USB/TTL
00514193	Setup Software and Interface cable for advanced configuration

STB/STW

JUMO

Safety Temperature Limiter and Safety Temperature Monitor (701150)

Features:
- SIL and PL approvals
- Can be configured as safety temperature limiter (STB) or safety temperature monitor (STW)
- LCD display with background lighting and plain text display
- Setup program available for configuration and archiving via USB interface. (USB Mini-B connector)
- Two relay outputs can be used as pre-alarm or limit value alarm
- Measuring input: 2 x Pt100 3-wire (also available for Thermocouples)
- Analogue Output 4~20mA
- JUMO Datasheet: 701150

Code	Specifications
701150-23	STB/STW Safety Temperature Limiter/Monitor, 110~240Vac
701150-25	STB/STW Safety Temperature Limiter/Monitor, 20~30Vac/dc
Accessories	
00506252	USB Cable, A-connector to Mini-B connector, length 3m
00548742	Software – Setup program STB/STW

DIGITAL THERMOSTAT

eTRON T100

JUMO

Electronic Thermostat (701052)

Features:
- 5 different measuring input groups
- Intuitive operation and configuration on the device or with the setup program through USB interface
- User level with 8 parameters
- Dot matrix display 64 x 80 pixels with 4 national languages
- Data logger function
- Service and operating hours counter
- Connection via terminal blocks with push-in technology
- 10 A Relay (changeover contact)
- Customer-specific linearization in the setup program
- Limit value monitoring function
- Timer function
- Connection diagram retrievable in the LCD display
- JUMO Datasheet: 701052

Code	Specifications
701052-801-02	eTRON T100 - Electronic Thermostat, RTD Pt100/Pt1000 Input, 230Vac
701052-801-31	eTRON T100 - Electronic Thermostat, RTD Pt100/Pt1000 Input, 12~24Vdc
701052-802-02	eTRON T100 - Electronic Thermostat Thermocouple Input, 230Vac
701052-802-31	eTRON T100 - Electronic Thermostat, Thermocouple Input, 12~24Vdc
Accessories	
00616250	USB Cable, A connector to Micro-B connector, length 3m

ENVIRONMENTAL

4~20mA Weather Sensor Transmitters

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Fully Mounted Weather Stations

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Humidity

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For the latest information & pricing check
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4~20MA WEATHER SENSOR TRANSMITTERS

T-CL

Temperature Sensor

Features:

- Single 4~20mA Outputs
- ±0.2°C pre-calibrated thermistor sensor
- Very Compact Design
- High Accuracy
- Easy to Install
- Reverse Polarity Protection
- Wide Power Supply Range
- IP67 weather proof

Code	Specifications
T-CL	Temperature Sensor complete with 1.5m cable (-30~70°C)

H-CL

Humidity Sensor

Features:

- Single 4~20mA Outputs
- Factory Calibrated digital Humidity sensor
- Very Compact Design
- High Accuracy
- Easy to Install
- Reverse Polarity Protection
- Wide Power Supply Range
- IP67 weather proof

Code	Specifications
H-CL	Humidity Sensor complete with 1.5m Cable (0~100%)

BP-CL

Barometric Pressure Transmitter

Features:

- Single 4~20mA Loop Powered Output
- Factory Calibrated digital Barometric sensor
- 700~1100 hPa
- Very Compact Design
- High Accuracy
- Easy to Install
- Reverse Polarity Protection
- Wide Power Supply Range
- IP67 weather proof

Code	Specifications
BP-CL	Barometric Pressure Transmitter, 700~1100hPa c/w 1.5m of cable.

These units can be added to one of of our **Fully Mounted Weather Stations** or our **Small and Medium Weather Systems** inside a **Radiation Shield**.
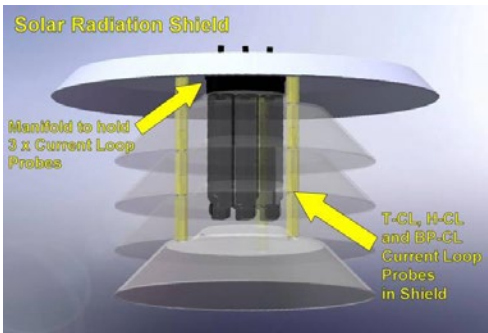
WD-CL

Wind Direction Vane

The wind vane has been manufactured from stainless steel and anodized aluminum so as to provide minimum maintenance and maximum reliability.

Features:
- Rugged construction
- Temperatures of -5~60°C
- Various output types (Standard 4~20mA)
- High accuracy
- Easy installation

Code	Specifications
WD-CL	Wind direction c/w 5m cable (0~360°), Damping: 2min Nominal over 90°

WS-CL

Wind Speed Sensor (Anemometer)

The Anemometer is used for the measurement of wind velocity. The Intech Anemometer is manufactured from stainless steel and anodized aluminium so as to provide minimum maintenance and maximum reliability.

Features:
- Range: 0~60m/sec for 3 Cup and 0~80m/sec for 6 Cup
- Accuracy ±2%
- Start speed: 1.5 m/sec for 3 Cup and 0.45m/sec for 6 Cup
- Cable length: 5 metres
- Various output types

Code	Specifications
WS3-CL	Wind Speed 3 Cup with 4~20mA output (1.5m/sec start, 20mA = 60m/sec)
WS6-CL	Wind Speed 6 Cup with 4~20mA output (0.45m/sec start, 20mA = 80m/sec)

LE-CL

Solar Radiation Sensor (Pyranometer)
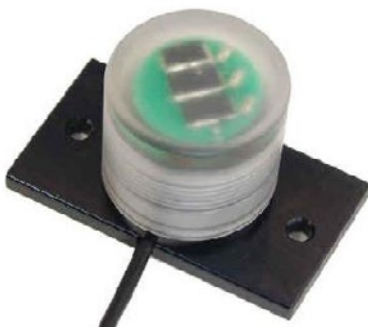
The pyranometer has been designed to provide a wide spectral response, an good cosine response and low susceptibility to inaccuracies caused by rain drop and dirt effects.

- Range 0~1500 w/m²
- Accuracy ±5%
- Cosine error is typically less than 3% from vertical to 85° in all directions
- Temperature Coefficient 0.15% per 1°C
- Other output types available on request

Code	Specifications
LE-CL	Light energy sensor with base plate and 5m cable,4~20mA Output

RAIN-CL

Rain Collector

- 0.2mm Rain gauge
- Pulse output
- 4~20mA output via included **PI-F transmitter**, 0~55mm/hr
- Sensor Type: Tipping bucket with magnetic reed switch
- Output: Contact closure
- Attached Cable Length: 12 m
- Cable Type: 4-conductor, 26 AWG
- Connector: Modular connector (RJ-11)
- Recommended Maximum Cable Length: 270 m
- Housing Material: UV-stabilized ABS plastic
- Dimensions Rain Collector: 16.5 cm diameter x 24 cm high
- Collection Area: 214 cm2

Code	Specifications
RAIN-CL	Rain gauge 0.2mm, 4~20mA Output via included **PI-F** transmitter, 0~55mm/hr
RAIN	Rain gauge 0.2mm, Pulse output, Pole mount

Mounting options

Mounting options for Weather Sensor Transmitters

LB
L-Bar with attachment plate and two 50mm U bolts

TB
T-Bar with attachment plate and two 50mm U bolts

Shield
Solar Radiation Shield – For housing the temperature, humidity and pressure sensors
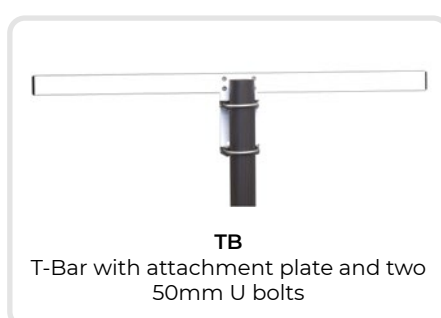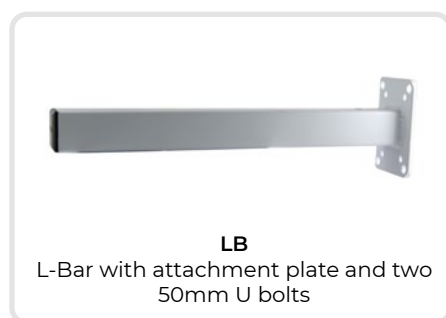
Code	Specifications
LB	L-Bar with attachment plate and two 50mm U bolts
TB	T-Bar with attachment plate and two 50mm U bolts
Shield	Solar Radiation Shield - used for more accurate measurement of temperature, humidity and barometric pressure sensors (Does not include Sensors). Must be attached to an L-Bar or T-Bar

Note: The L-Bar and T-Bar mounting arms have an attachment plate with holes that can be used for mounting to 50mm (2inch) or 25mm (1 inch) diameter pipe or bolting to posts or buildings. The L-Bar and T-Bar are supplied complete with two 50mm (2inch) U bolts.

Weather Stations

Weather Sensors Transmitters mounted on L or T Bar arms

THP-LB-CL

WS3-WD-THP-TB-CL

Code	Specifications
WS3-WD-TB-CL	Wind speed 3 cup and Wind Direction, mounted on T-Bar mounting arm complete with 5m cable
WS3-WD-THP-TB-CL	Wind speed 3 cup and Wind Direction with Temperature, Humidity and Barometric Pressure sensors, all housed in a Solar Radiation Shield, mounted on T-Bar mounting arm complete with 5m cable
THP-LB-CL	Temperature, Humidity & Barometric Pressure sensors, all housed in a Solar Radiation Shield mounted on L-Bar mounting arm c/w 5m of cable
Options	
LE-CL	Light Energy Sensor
WS6	Fit WS6 (Wind speed 6 cup), instead of WS3 on above T-Bar options (for lower starting speed = 0.45m/sec, 20mA = 80m/sec)

WS3-WD-THP-LE-TB-CL

WS3-LB-CL

Note: Please contact us for complete **Environmental Monitoring Systems.**
See our **GP-HR (4 Input) Multi Purpose Datalogger** on page 154 and/or **GP-MC (10 Input) Multi Purpose Datalogger** on page 160. Please see also **MicroScan SCADA** on page 141 and **eze Cloud based** on page 148 for Monitoring Systems.

HUMIDITY TRANSMITTERS

LPN-H

Relative Humidity & Temperature Transmitter

LPN-H-W

F2

LPN-H-D

Features
- Sensirion SHT25 Digital Humidity Sensor
- Long Term Stability
- Fast response: 4 seconds from 0~100%RH under ideal conditions
- Dual 4~20mA Outputs
- %RH Temperature Compensated Linear Output RTD Pt100 Sensor
- Temperature Output 0~100°C (0~200°F option on request)
- Temperature Output Linearised
- Operating Temperature: -30~70°C
- Very compact design
- High accuracy
- Easy to install
- Reverse polarity protection
- Wide Power Supply Range
- Rugged and reliable

Code	Specifications
LPN-H-W	Relative Humidity & Temperature Transmitter, Wall Mount
LPN-H-D	Relative Humidity & Temperature Transmitter, 220mm Duct Mount
Accessories	
F2	Flange for LPN-H-D, 100mm OD x 24.5mm ID with locking screw
LPN-H-CAL	Non-Spill Calibration kit with 33% and 75% RH salt solutions including adaptor

Accessories

LPN-H-CAL - Calibration System for LPN-H Humidity sensors

The LPN-H-CAL system is designed to allow in situ calibration of LPN-H-W and LPN-H-D Humidity Transmitters.

The LPN-H-CAL system consists of canisters containing humidity regulating salt solutions that replace the protective filter on the sensor.

Note: It is recommended, where possible, that the LPN series humidity/temperature sensor is mounted vertically with the orange protective cover at the bottom to help prevent moisture build up on the sensor in high humidity situations. This position can also help during calibration, allowing easier access for the calibration kits with a reduction in the spillage of calibration fluids.

WET/DRY BULB HUMIDITY TRANSMITTER

IN-HWD

Wet & Dry Bulb Humidity and Temperature Indicator/Transmitter

- Humidity and Temperature Indicator/Transmitter
- This unit is used with a wet and dry sensor system (e.g. WDT-DW)
- The IN-HWD uses a microprocessor with formulae and look-up tables to obtain better than 1% accuracy for relative humidity over the range of 0~100°C

Features
- Input: 1x wet bulb and 1x dry bulb
                  Standard: RTD Pt100, 3 wire DIN (0~100°C)
- Output: 1x humidity and 1x temperature
                  2 channels: 4~20mA
- Resolution: 0.025% Full scale. 12 bit
- Indicator: Dual LED screens for humidity and temperature
- Standard Power Supply: 85~264Vac / 95~370Vdc

Code	Specifications
IN-HWD	Humidity and Temperature Indicator/Transmitter, High Voltage Power Supply
Options	
LV	Low Voltage Power Supp;y
R4	4x 5A Relay Outputs
WS232	Serial Port RS232: Includes Modbus RTU
WS485	Serial Port RS485: Includes Modbus RTU

WDT-DW

Wet & Dry Bulb Humidity Tank
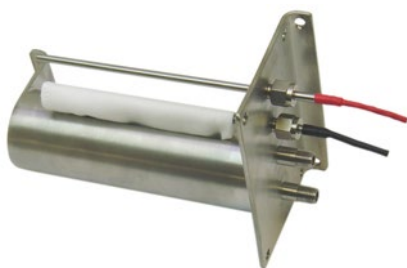
- Humidity tank with wet and dry sensors
- For the measurement of relative humidity, RH%
- Commonly used with the IN-HWD Humidity Indicator/Transmitter
- Constructed of 316 stainless steel

Features
- Sensor: Band 5 RTD, Pt100, 4.7ø x 150mm. Others by request
- Fill port: 1/8"BSP nipple
- Overflow port: 1/8"BSP nipple
- Mount: Wall or duct mount
- Cable: 3 metres

Code	Specifications
WDT-DW	Wet & Dry Bulb Humidity Tank (Includes two RTD Probes and wick)
Accessories	
WDT-WICK	Spare wick for wet bulb sensor
RL-S4.7-150-E-3000	Spare Probe for WDT-DW, RTD Probe with Lead, Band 5 sensor, 4.7mm x 150mm, 3m PFA

HAND HELD HYGROMETER

Center 317

Humidity Temperature Meter (Dew Point, Web Bulb)

Features

- Dew Point And Wet Bulb Temperature Measurement
- Fast Response
- Auto Shut Off For Battery Saving
- Max/Min Function
- Dual Displays: Primary Display For Humidity ; Secondary Displays For Temperature

Code	Specifications
Center 317	Humidity Temperature Meter (Dew Point, Web Bulb)

YC-321

Digital Hygrometer

Features
- 3 1/2 digit LCD with maximum reading of 1999
- Easy operation
- Fast response time
- High accuracy and precision
- Backlight and dewpoint/wet bulb
- Data hold
- Max/Min record
- Temperature unit °C/°F selectable

Code	Specifications
YC-321	Thermo Hygrometer with extension probe
YC-322	Thermo Hygrometer

Intech Instruments Limited
CONDITIONS OF SALE

Note: These terms and conditions apply to the transaction to which this invoice relates and also to all future transactions between Intech Instruments Limited and you.

1. **Prices**: All prices are based on the factory price list as held by Intech at date of quotation, and also on rates of duty and primage, basic wages, freight, insurance and foreign exchange fluctuations at date of quotation. Any increase between the date of quotation and the date of delivery in direct costs other than the factory price resulting fromvariation in any of these factors or any other factor beyond the reasonable control of Intech shall be payable by the purchaser, provided the Buyer may cancel the Agreement within 7 days of notice of any increase in price. All prices quoted unless otherwise specified are in New Zealand dollars.

2. **Validity**: Unless previously withdrawn our quotation is open for acceptance for the period stated therein, or when no period is stated, within 30 days only from the date thereof, and is subject to confirmation by Intech at the time of such acceptance. The quotation is not deemed to have been accepted until all information required for indenting or ordering of items has been received.

3. **Government Approval or Import License**: Our quotation is subject to the availability of any necessary Government Approval or Import Licences and in the event of such approval or Licence not being forthcoming after reasonable efforts have been made by Intech, Intech may at its option determine the contract of sale and neither party shall have any claim against the other in respect thereof.

4. **Delivery**: Where a delivery period is quoted the period will commence when the purchaser accepts or is deemed to have accepted the quotation or upon the granting of Government approval or Import Licence where necessary or (where requested by Intech) upon receipt by Intech of all necessary information and drawings to enable the work to be put in hand whichever is the later. In no circumstances shall Intech be liable for late delivery by reasons of fire, strike, stoppages of work, war, Government action, transport delays, acts of God, shortages of supplies or manufacturers delays or any other cause whatsoever beyond Intech's control. Delivery shall be deemed to be made to the Buyer when the goods are despatched from Intech's premises or at the time when the Buyer is advised of the availability of the goods for dispatch in the event of the Buyer being unable to take delivery immediately. Where the goods are to be supplied and installed by Intech, delivery shall be deemed to be made when the goods are supplied and delivered to the Buyer's premises. Where it is agreed that the goods may be delivered by instalments each delivery is to be regarded as a separate contract and price payable accordingly. Failure of the Buyer to pay for one or more instalments of goods on due dates shall entitle Intech at its option to: a) suspend further deliveries pending payment; and or b) treat the agreement as repudiated by the Buyer.

5. **Passing of Risk**: Risk passes from Intech to Buyer on delivery from which time the goods shall be at the sole risk of the Buyer notwithstanding that payment for such goods may be payable in whole or in part at a later date.

6. **Property in the goods**: Until payment of the whole of the purchase, the property of the goods shall not pass to the Buyer not withstanding that the risk has passed to the Buyer on delivery as aforesaid. Pending full payment, the Buyer agrees to hold the equipment as bailee and in default of payment on the due date of any instalment to return goods in good order and condition to the company.

7. **Insurance and Transportation**: All insurance and transportation charges after delivery are the responsibility of the Buyer. Where requested, Intech will arrange transport and insurance for the goods on behalf of the Buyer and the cost thereof shall be paid by the Buyer.

8. **Damage, etc.**: Inspection of the goods shall be made by the Buyer immediately upon delivery and in the event of damage, incorrect execution or shortage, the Buyer shall notify Intech in writing within 3 days of receipt of goods, and shall similarly notify the carrier in the case of damage or shortage of goods. Intech shall not be liable in respect of damage or shortage caused in transit, but any insurance arranged as in clause 7 hereof shall be applicable. The Buyer shall afford Intech the opportunity to inspect the goods within a reasonable time following notice and before any use is made. If the Buyer fails to comply with the provisions the goods are conclusively presumed in accordance with the agreement and free of any defect/ damage apparent on reasonable examination and the Buyer has deemed to have accepted them.

9. **Payment**: Payment must be tendered to Intech in New Zealand currency at the registered office of Intech by the 20th of the month following the month in which the goods were despatched. If you are a Cash Only customer, then payment must be received before dispatch of goods. Unless stated to the contrary Intech reserves the right to charge interest at 10% per annum on overdue accounts.

10. **Guarantee**: Equipment supplied by Intech Instruments Ltd, unless otherwise stated, is guaranteed against faulty workmanship and material for twelve months from the date of dispatch from Intech's premises. Intech's responsibility is limited to the replacement of defective parts whether the work is carried out on site or at Intech's premises.Equipment may be repaired under guarantee on site or at Intech's premises providing the equipment is returned to Intech freight paid. If the repairs are carried out on site travelling and accommodation costs may be charged at ruling rates. Should Intech be called upon to carry out work under guarantee and find that the fault is not due to faulty workmanship or materials on Intech's part then any costs involved will be added to the contract price and charged accordingly.

11. **Limitation of Liability**: Intech's liability to you is strictly limited to its obligations under the guarantee. Intech accepts no responsibility for any other damage loss or losses arising from or in any way connected with the goods supplied or services provided whether directly or indirectly and whether by way of consequential loss or otherwise howsoever. If despite the exclusions of liability in this clause Intech is found to be liable to you, the liability shall be limited to the value of the goods or services supplied by Intech to which the claim relates. Intech gives no warranty that the goods are suitable for the purpose for which the Buyer proposes to use them and the Buyer must be satisfied, in the Buyer's own judgment, that such goods are in fact so suitable. As Intech may have no control over the inclusion of any goods as components of any process or equipment Intech gives no warranty that the goods will then function in any particular way.

12. **Errors**: Quotations are subject to correction by Intech for omissions and typing errors.

13. **Definition**: Wherever the word "Intech" is used it shall be deemed to extend to and include Intech Instruments Limited or its successor or assign.

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